

EXHIBIT 5
**[UNREDACTED VERSION OF
DOCUMENT SOUGHT TO BE SEALED]**



Grenada/Bacall BP2 CTU and Grenada SAD Approval Request 1/15/14

Grenada Core Team
Seagate Technology



Grenada/Bacall BP2 Core Team Requests Your Approval

At this time the Grenada/Bacall BP2 Core Team is requesting your approval for CTU shipments for Grenada and Bacall BP2. In addition we are requesting Grenada BP2 SAD. Metrics for these requests have been met with no exceptions. Factory team is preparing a ramp plan for Q3 and will be used to update MBS.

CTU's will include Plastic DSP and TI Dillon servo ASIC. **This is for CTU only at this time and the usage of those parts in revenue shipments require a regression qualification to ensure we meet cleanliness, yield and Reliability metrics for volume release configurations.**

- Plastic DSP's will require an improved cleanliness of the part via gate treatments and/or FOF cleaning. Expected timelines for HiP are by end of Q3
 - TI Dillon needs a new wire frame to eliminate shorting seen in board assembly, updated firmware and BOM to resolve yield issues seen at board test, factory drive yields, and other program experience with TI Dillon. Expected timelines for TI Dillon regression are by end of Q3.
 - 500GB one headed builds will require new machining changes to ensure we maintain RSA/PSA targets for Grenada builds. RGA and ODT testing close out qualification by Feb, Thanit working to pull in earlier.
 - Lombard "new2" clamps for plug balance will be phased in once regression testing completes end of January. This will remove restriction of using TDK parts on Bacall MD drives.
- CRT2 has started and should complete ~2/20 and will be utilized to achieve SAD for Bacall BP2 and serve as a visible RDT for OEM's which require for RTS. Scrap/Yield plans are included for uPemto and GOTF differences which the Core Team will close along with Factory and RHO.

If you have any questions or concerns please contact the Grenada/Bacall BP2 Core Team! Go Grenada/Bacall BP2!



BP2 CTU/SAD Declare Checklist

7. CTU/SAD

Product: Grenada/BacalBP2

Report Date: 1/15/2014

Functional Organization	Deliverables	Criteria	Last Update	Current Status	Risk	Owner
1. Phase Exit Milestone Criteria	Yields and Test Times meet Phase 0 Targets		1/15/2014	Yes	No Risk Assigned	
	168-Hr DPPM Goal Achieved	8K	1/15/2014	35.6K	No Risk Assigned	
	All contract items are within variance and projected to remain so	Yes	1/15/2014	Yes	No Risk Assigned	
	Compare CC/SKU Count Matrix with approved Phase 0 Contract. Highlight differences to the SMT.		1/15/2014	Yes	No Risk Assigned	
	Component sources defined on the SSP approved to AML level AB. Exceptions have defined/underpinned closure plans. Qualified Sources can support Master Schedule Requirements.	SSP sources approved to AML level AB with underpinned closure plans.	1/15/2014	Underpinned	Low Risk	Materials/Bob Kolanda and Core Team
	Contamination Management Plan			Yes	No Risk Assigned	
	Design Engineering Checklists Complete: Mech, Servo, EI, HDIG/ RSS, Firmware, RHMO	Complete	1/15/2014	Yes	No Risk Assigned	
	DMT Criteria Met	Complete	1/15/2014	Yes	No Risk Assigned	
	Exceptions to previous Phase Review closed	None	1/15/2014	Yes	No Risk Assigned	
	Head Electrical Test Yields meet Phase 0 Targets	Complete (89.2%)	1/15/2014	Yes	No Risk Assigned	
	Integration DPPM Goal Achieved	1K criteria	749	Yes	No Risk Assigned	
	Inventory / Material Disposition - Complete roll-up of all Factory and DC pre-SAD config inventory/WIP/FG and Disposition	Complete roll up and disposition	1/15/2014	Yes, this is managed weekly by Bob Kolanda and Core team	No Risk Assigned	
	MTBF Achieved	250/400K MTBF	1/15/2014	268/481K MTBF	No Risk Assigned	
	No High Risk Issues - All testing applies	No high risk items	1/15/2014	Yes	No Risk Assigned	
	PDP Deliverables completed and entered into PDR database.	In Progress	1/15/2014	In progress	Low Risk	
	Process Readiness Audit and Process Verification Test Results approved by the Volume Factory and Design Center. - Includes QA Hardware/Software Readiness - Includes Rework Qualification Plan in place with closure by SAD.	Complete	1/15/2014	Not Posted	No Risk Assigned	
	Product Stewardship Declaration of Compliance at a minimum of 95% completed.	Complete	1/15/2014	Yes	No Risk Assigned	
	Testing Complete - Product Assurance, Firmware/Compatibility & Engineering Regression	Complete	1/15/2014	Yes	No Risk Assigned	

BOM for Grenada/Bacall CTU

Product Segment Alignment

- BP2 Grenada/Bacall 1,2-3D Disty and OEM

Mechanical

- Media – any approved BP1.5, Showa will be added upon completion of qual.
- Common BOM items – Mostly BP1.5, include 430SST TC, **Plastic DSP from HiP for CTU only, no mass production until regression RDT demo with cleaner gate changes!**
- MBA – Nidec, Semco (Option1,2,and3)
- Stack Assy – Kaifa, Korat, Wuxi
- Preamp – TI, LSI 2-4-6ch. No fab exclusions
- PCC / PCCA / Hookup – Approved base can support MS demand, full closure in CRT2
- Head / Wafer – Native / Consign uPemto (**bar bake, IR PZT cure, with CA wafer!**)
- TGA – MPT/NHK 11.3.1 or 4.7 MPT for Consign

Electrical

- GBP32 - Dillon ST, TI Assy can be used for CTU, no mass production until we regress configuration and demo yield parity, no assy subcon exclusions
- SOC – LSI Luxor Lite, no Fab or packaging site restrictions
- SVO – Dillon ST, **Dillon TI for CTU only**
- Flash – Winbond, Sanyo, no Elite
- DDR – Winbond, Samsung, Nanya, Hynix

Firmware/PCO

- PCO >= 4.3 and code as defined on BOM's



BOM for Grenada SAD

Product Segment Alignment

- BP2 Grenada 1,2-3D Disty and OEM

Mechanical

- Media – any approved BP1.5, Showa will be added upon completion of qual.
- Common BOM items – Mostly BP1.5, include 430SST TC, **No Plastic DSP from either vendor until regression RDT demo with clean gate changes**
- MBA – Nidec, Semco (Option1,2,and3)
- Stack Assy – Kaifa, Korat, Wuxi
- Preamp – TI, LSI 2-4-6ch. No fab exclusions
- PCC / PCCA / Hookup – Approved base can support MS demand, full closure in CRT2
- Head / Wafer – Native / Consign uPemto (**bar bake, IR PZT cure, with CA wafer!**)
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Electrical

- GBP32 - Dillon ST No TI Assy until we regress configuration and demo yield parity, no assy subcon exclusions
- SOC – LSI Luxor Lite, no Fab or packaging site restrictions
- SVO – Dillon ST, **no Dillon TI until we regress configuration and demo yield parity**
- Flash – Winbond, Sanyo, no Elite
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Firmware/PCO

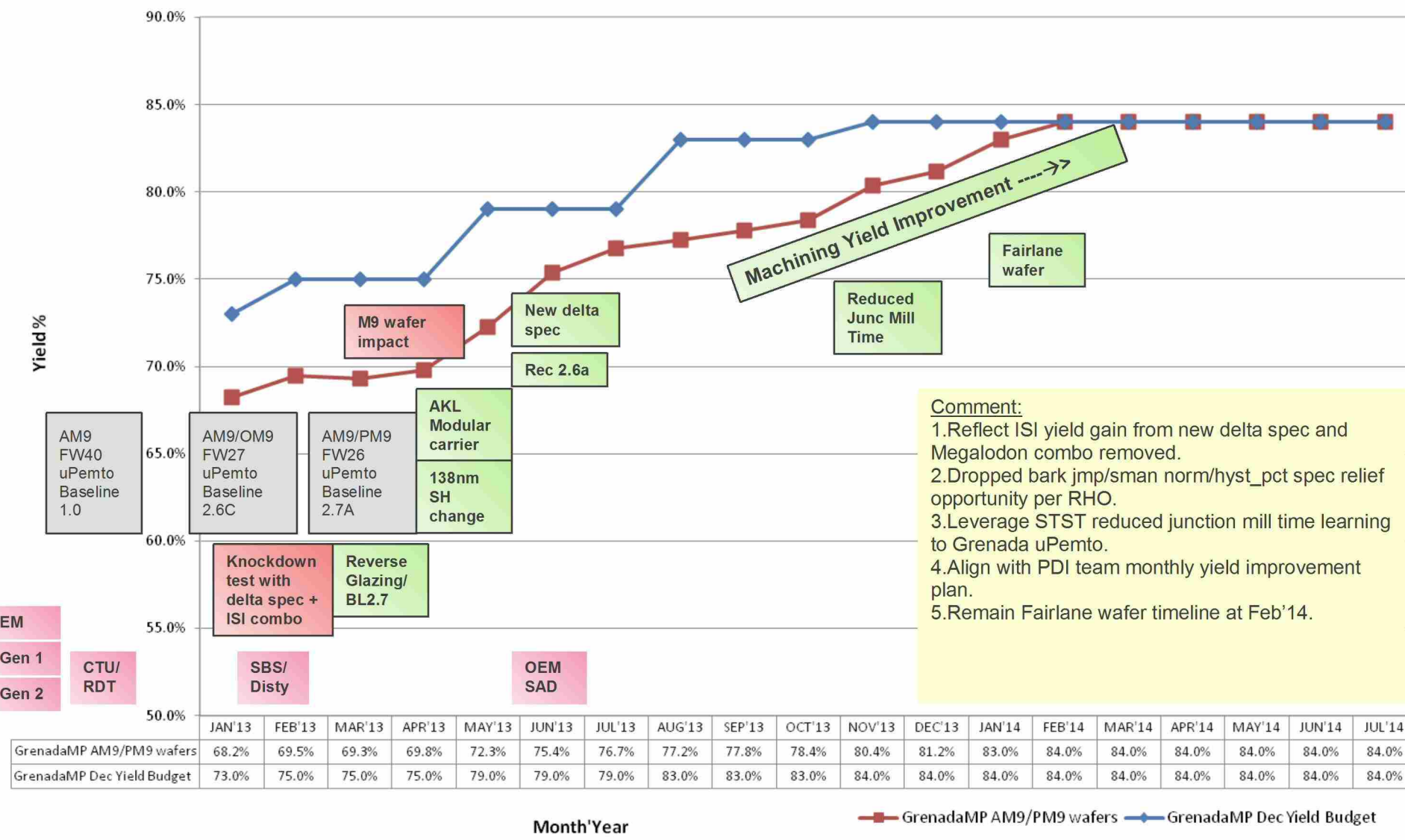
- PCO >= 4.3 and code as defined on BOM's



BP2 T315 instability failures action plan

- PCO5.0
 - PCO 5.0 will be delivered to factory for check out and RGA on 02/6/2014
 - This PCO will have enhanced instability grading
 - This grading will contain additional checks for degradation (delta BER in T250) and instability (T297)
 - Expect **30-40% recovery** in yield over PCO4.3
- From PCO 5 RGA, recommend collection of residual failures (n=100 minimum) for 500 hr run RDT
 - Korat Reliability to make call regarding quality of this failing sliver

GrenadaBP2 CYP Chart



Grenada BP2 Yield Improvement Plan Itemization							S7	Overall(S5/S6+)		
Category	FW	Date	Yield Adjustment Item	Impacted CTQ	Budgeted BER Change (QMON0)	Budgeted ADC change	Sort Yld (Prime)	Drive ADC mean (S5+)	Sort Yld (S5+)	Sort Yld (S6+)
Current baseline	1350	6/13/13	BP4.5 Transducer (M9/HMRB9.6/22A DLC/G8.5B+)				72	1.03	84	82
uPemto/dPemto offset closure	1351	6/20/13	ADC/BER retest aligned to dPemto	BER/ADC	-0.05	0.8%	74	1.04	84	82
	1352	6/27/13	Q413 Reader res delta FA and corrective actions	Yield	0.00	0.0%	76	1.04	86	83
	1410	9/6/13	HFA gradient improvement	Stability / HFA Sigma	0.00	0.0%	77	1.04	87	84
Head	1405	8/2/13	ADC TF/spec opti	ADC	0.00	0.0%	78	1.04	88	85
Head	1405	8/2/13	WPE target to 3.25µin	WPE mean	-0.14	2%	79	1.04	89	86
Head	1413	9/27/13	Stability open spec build with current AAB	Stability	0.00	0.0%	81	1.04	91	89
Drive	1415	10/11/13	BP2 drive system gain	Drive ADC	0.00	3%	81	1.07	91	89
Head	1423	12/6/13	Stability open spec build with low flying AAB	Stability	0.00	0.0%	82	1.07	92	89
Media	1426	12/27/13	Grenada G9.1LT Media	BER/ADC/OVW	-0.20	3.0%	85	1.10	93	91
Head	1427	1/3/14	uGBP8 Transducer (Wafer TBD, Fairlane 1.0, Carraig2A, Exc1.0, LB Opti1)	BER/ADC; Stability	-0.13	2.0%	87	1.12	94	92
Future opportunities	1501	7/5/14	BP9 Transducer (EXC3.1)	BER/ADC/OVW	-0.15	2.3%	89	1.15	95	92

- Baseline Yields change to 72% Native 84% Cum
- Changes from FW45 YIP:
 - Offset Closure increases cum yield from 85 to 87
 - At 1.05/1.06 next phase of drive open specs due to ADC maturity
 - Revise timeline ADC TF Opti / Stability open spec build

Slider Baseline 2.7b for uPemto

Baseline 2.7b = BL 2.7 with the addition of

- Modified AKL carrier (MCD II)
- Talc-Free PU Tape at carrier mount for dice

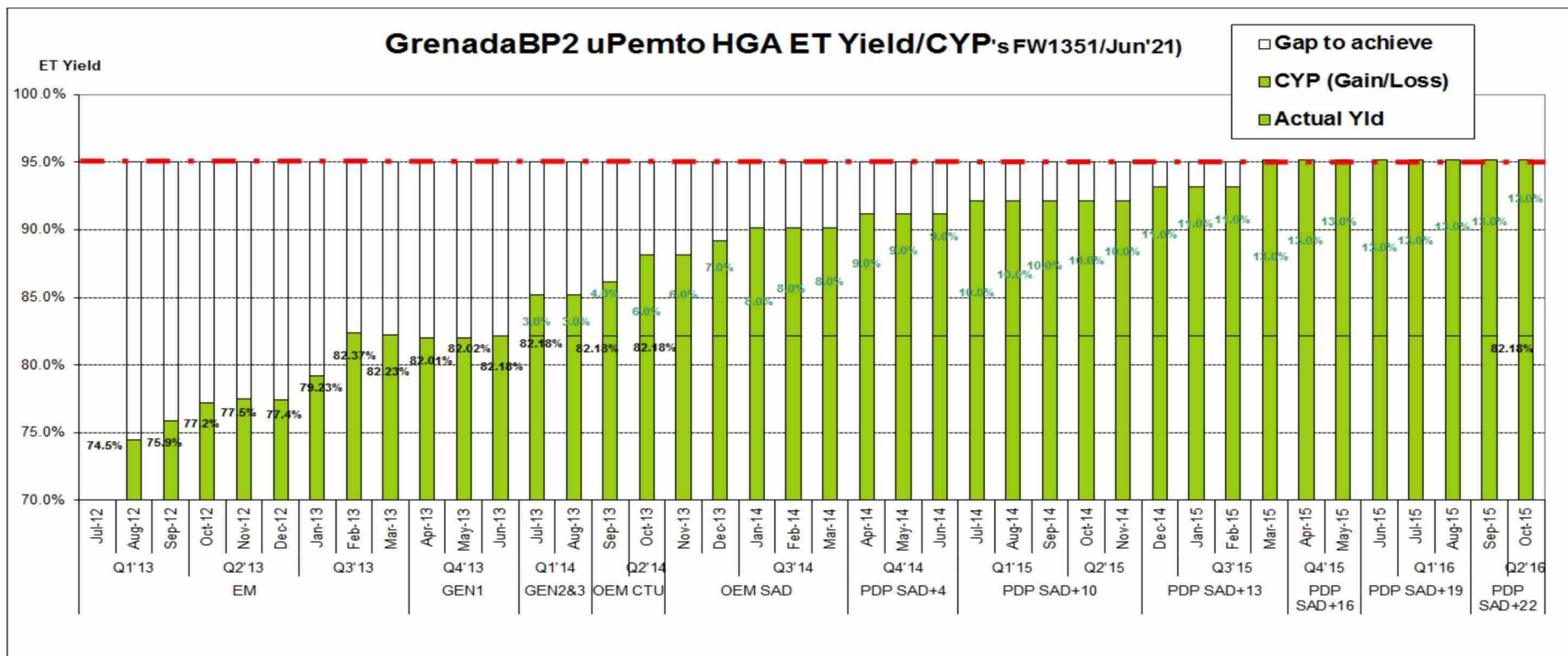
Modular Carrier Design – MCD II

- Poor stripe height control of uPemto bar ends with original carriers (uPemto bar ends extend beyond last finger on carrier).
- Internal carrier component re-design: increase width of three end fingers, enabling better push/pull stroke on these fingers, and hence delivering better SH and flatness control of bar-end sliders.
- No change or impact to any other bar dimensions or AKL targets.
- RGA/ Full Implementation: FW41 - 47

Talc-Free PU Tape

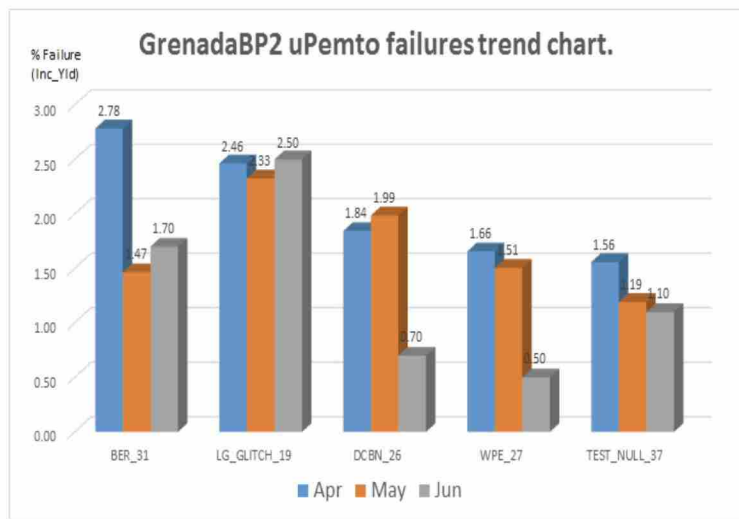
- Previous Polyurethane (PU) tape was the primary source of talc (MgSiO) particles.
- The use of Talc-Free PU tape needed 5-deg increase in HBTC and oven temperatures (110C to 115C) to achieve the required adhesion for dicing.
- RGA/ Full Implementation: FW38 - 44

STPG
BL2.7b
PDI Baseline
GF=500/800
3+2
11.22.e064 SAW1
PEEK Weight
Reverse Glazing
Ambient Cooling
Shielded
H&K 1mil Norm 64
3M (1um)
225nm
200um-V, CB15
5% 10min soak
2x ring, 5min
L6037+Oxidant
FAPC
30% 70nm emuls.
ANAC buff
V-Mount
Chamfer Gel
Modular Carrier (MCD II)
68 end Lr (Alt bond)
3.7
AKL3.4 IPC
normal oscill.
Final Hi
STKL-1097
900A + Shift
FAWS (new clasper)
IRC IPA
Solvent Tooltek
UV Ozone
No Scrubber
Pre DLC SSEC IPA
PLS2
500.04 UCJ1
Gen0/1
55+75, 150
Optimized photo
3% MD
Acetone Wipe
Acetone Ultrasonic
Rcp2
Talc Free PU Tape II
2x
Yes
SSEC
Ceramic Insert
New Spacer
3-hr Rest Time Infinity
Sonic
3%
Recipe 2.5
Flat Lubrizol PEEK



Grenada BP2 / uPemto (CYP as of WW51'13)	When	Expect Gain	Cum ET Yield	Confidential level
Base line			84.0%	
ADC/BER retest aligned to dPemto	FW1352	0.0%	84.0%	
Q413 Reader Res Delta FA & CA	FW1402	1.0%	85.0%	
ADC TF and spec optimization	FW1405	0.0%	85.0%	
WPE target to 3.25u	FW1405	0.0%	85.0%	
HFA gradient improvement	FW1410	1.0%	86.0%	
Stability Open Spec with current AAB	FW1413	2.0%	88.0%	
Stability Open Spec with low flying AAB	FW1423	1.0%	89.0%	
G9.1LT Media	FW1426	1.0%	90.0%	
PDP SAD+4	FW1438	0.0%	90.0%	
uGBP8 Transducer (Fairlane1.1, NSS7, Carraig2A, EXC1.0, LB Opti1)	FW1439	1.0%	91.0%	
BP9 Transducer (EXC3.1)	FW1501	1.0%	92.0%	
PDP SAD+10	FW1509	0.0%	92.0%	
PDP SAD+13	FW1522	1.0%	93.0%	
PDP SAD+16	FW1535	2.0%	95.0%	
PDP SAD+19	FW1548	0.0%	95.0%	
PDP SAD+22	FW1609	0.0%	95.0%	

Remark : Consider all Green as Pre-lim.



Recipe 3.1 Update



Penang Slider Operations

Next Potential Improvement → BL3.1a

NRM and Penang Cleaning Team collaboration

Changes to affect

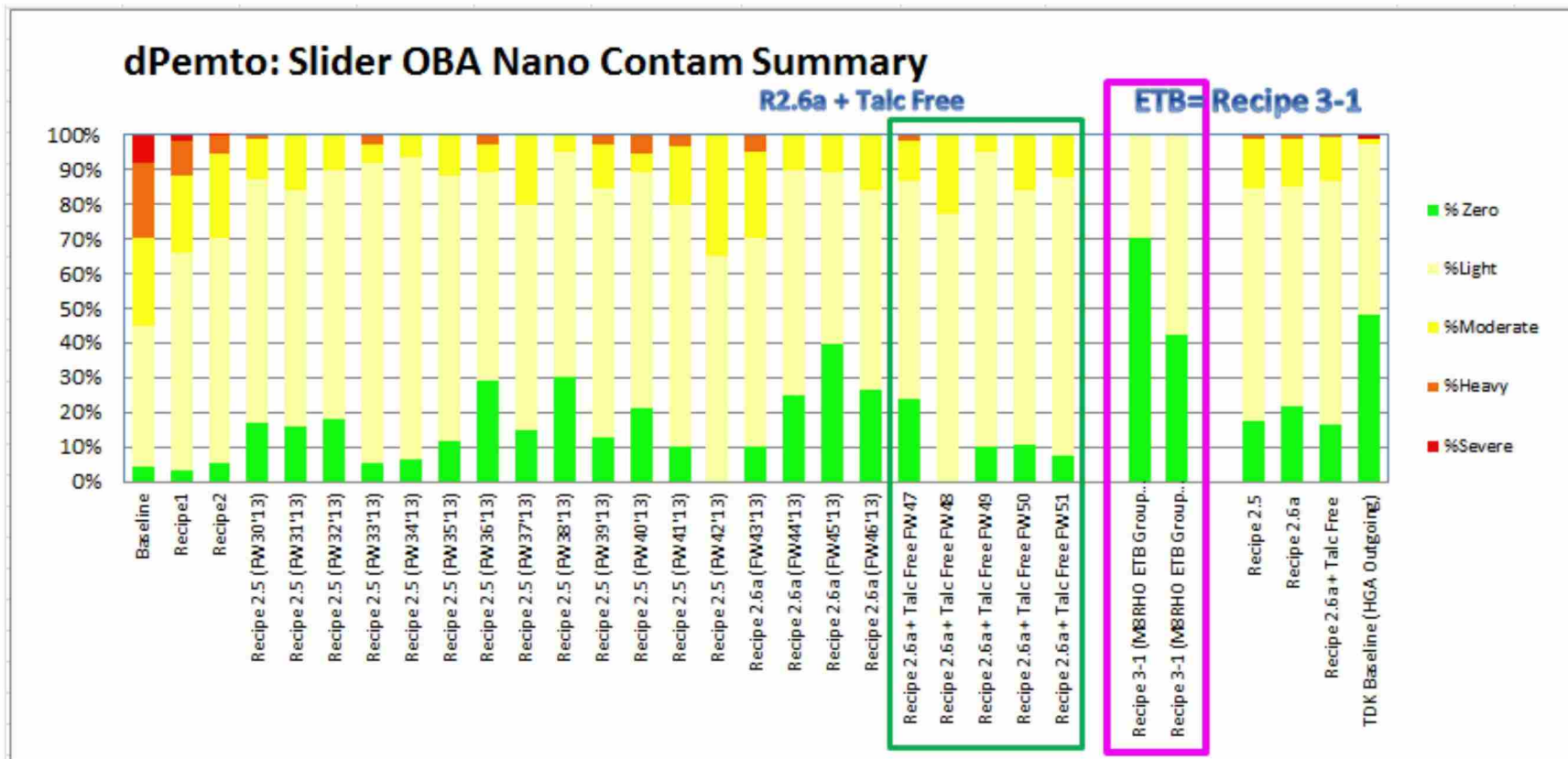
- Removal of Cyanoacrylate residuals with micro90 wipe → Nano contam
- Full immersion cleaning upstream → Sidepad/backpad cleanliness
- Lower 192kHz power → Nano Pitting
- Elimination of non-value add steps

Cleanliness results to date look very good.

Changes to flow and chemistry are significant and require interactions assessment. (in progress)

Implementation targeted for Sept 2013

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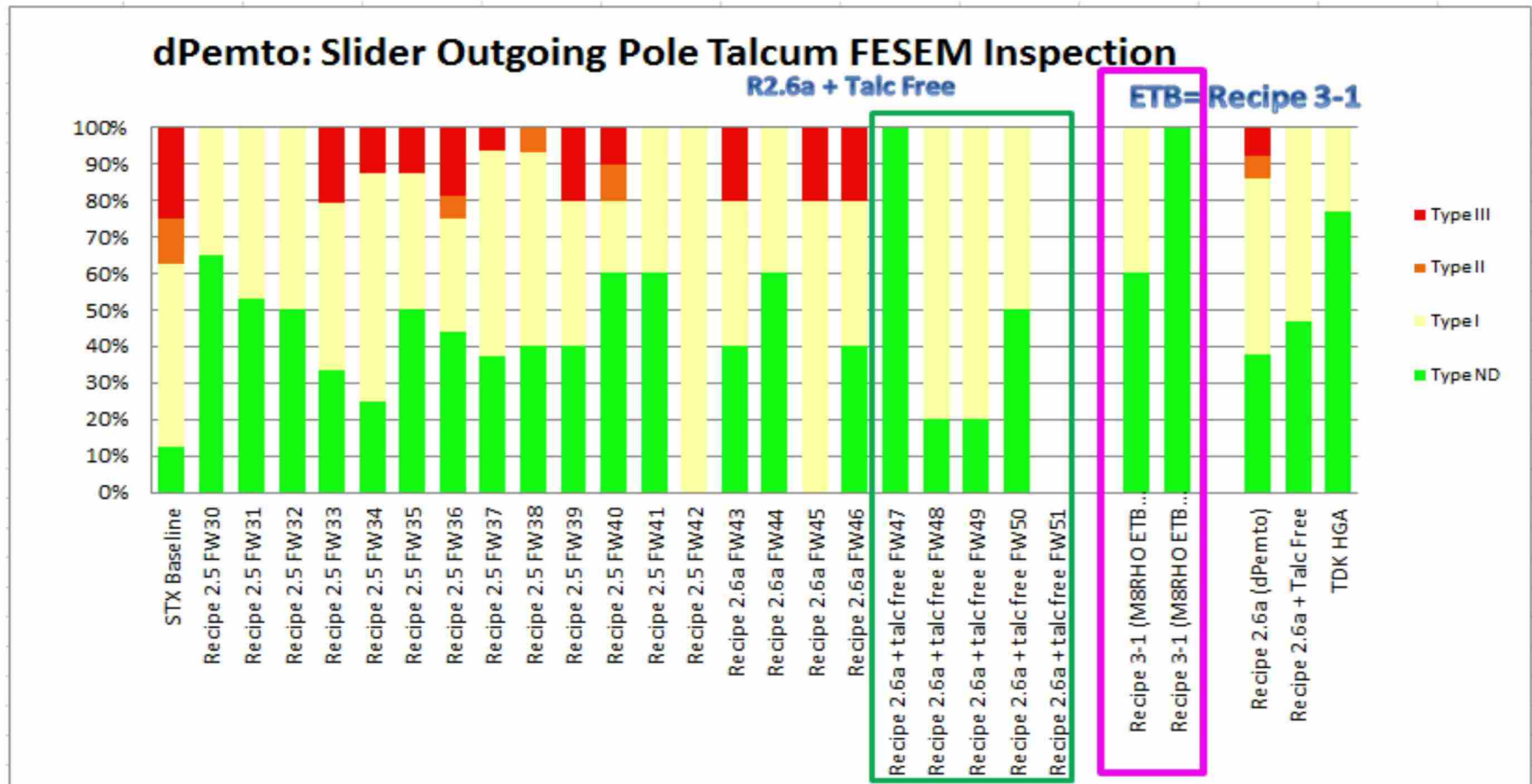


Summary (for product with Recipe 2.6a):

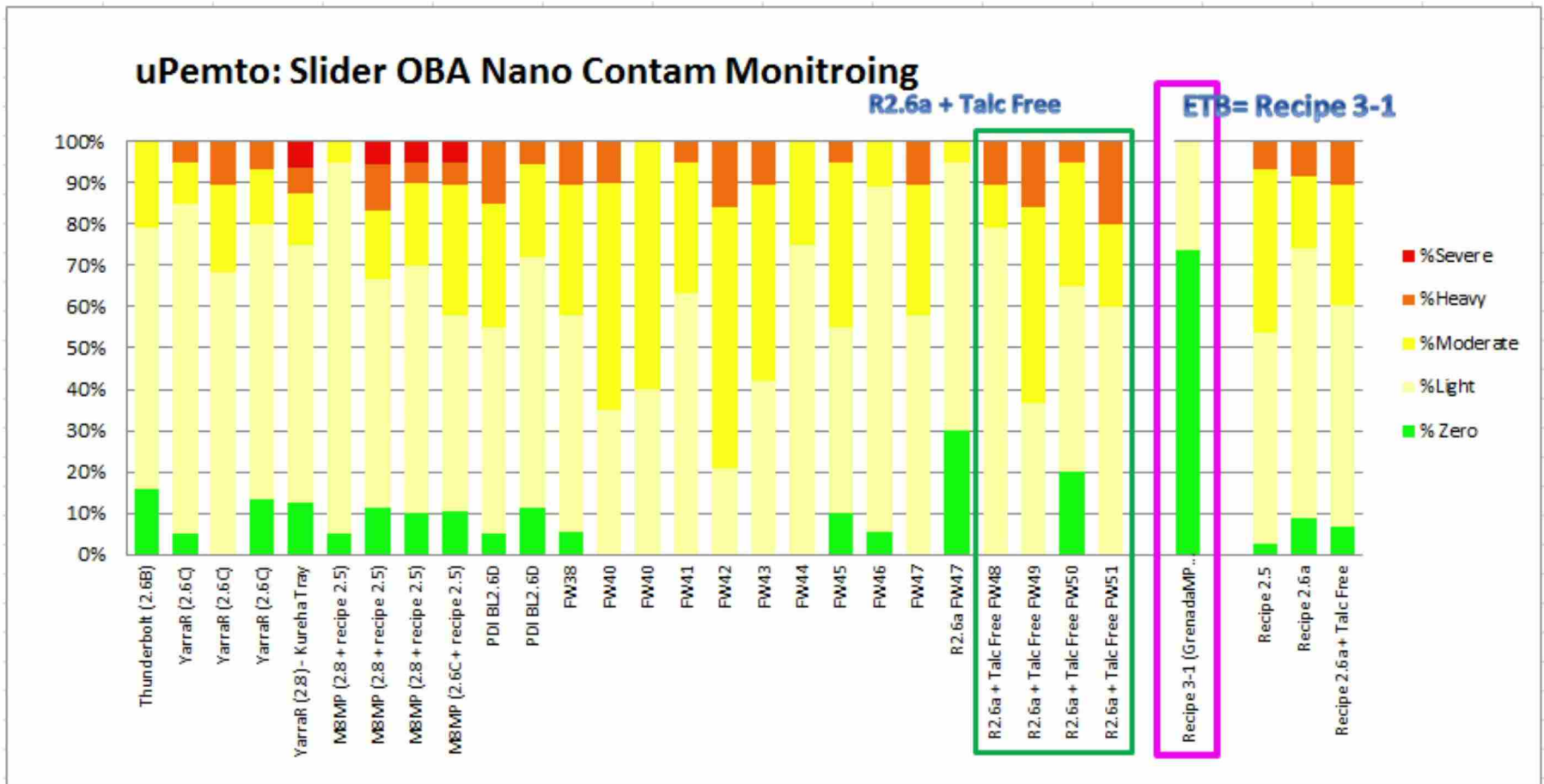
Recipe# 2.6a

	Baseline	Implementation
Mode 0	16%	23%
Mode 0 + Light	87%	87%
S/Size		214pcs

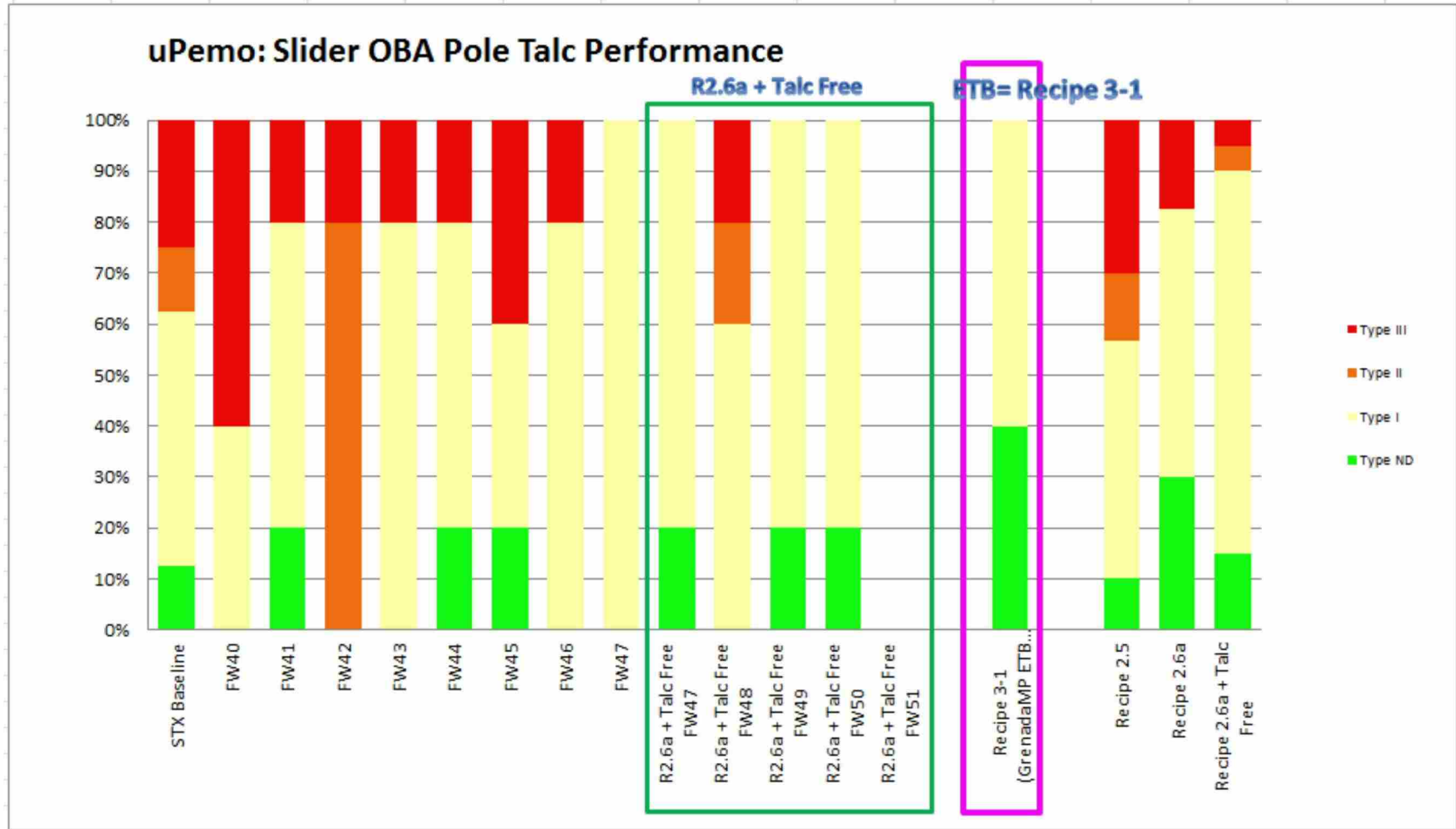
- In summary, recipe 2.6a is significantly better in terms of mode 0, 24% post cut in vs recipe 2.5 baseline of 16%.
- Recipe 2.6a implemented on 11-Apr-13. Data collection ongoing.
- 100% recipe 2.6a started from early FW43'13 @ slider outgoing.
- ETB (recipe 3-1) ongoing and prelim data showing positive results. ETB Group 2 expected HGA results end of this week.**



- Big clean post talc free PU tape implementation completed in early of FW48'13. Data from FW49'13 onwards showing 100% type ND + type I.
- Continue to monitor the data.



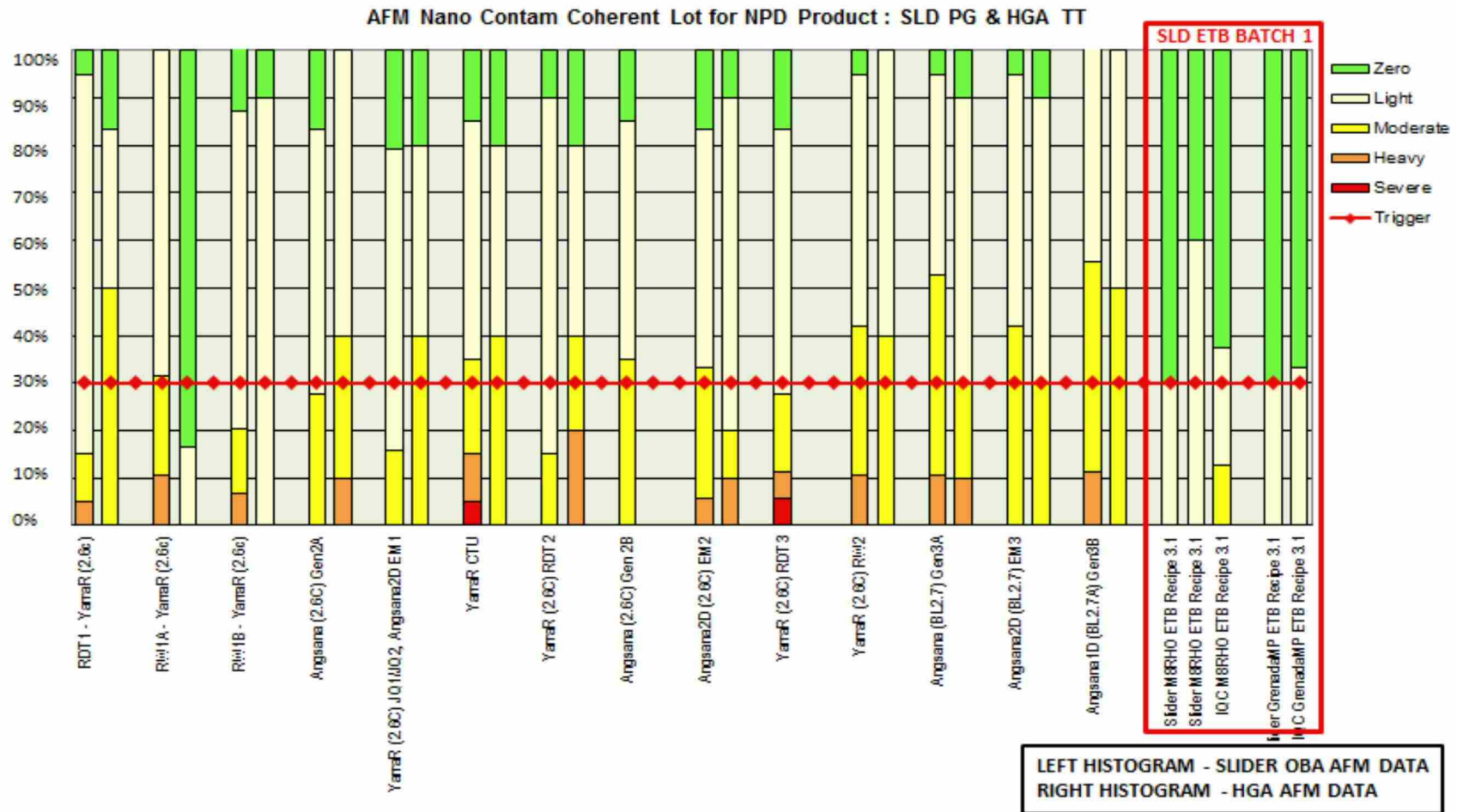
- Recipe 2.6a has comparable or better performance in terms of nano contam for uPemto. Slider cut in on end of FW46'13.
- Slider marking started on 27-May-13. All marked as '26A' on 2x2 label.
- Big clean post talc free PU tape implementation completed in early of FW48'13.



- Big clean post talc free PU tape implementation completed in early FW48'13. Data from FW49'13 onwards showing 100% type ND + type I.
- Continue to monitor the data.

ETB Eval: Incoming HGA Nano Contam Level

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- HGA incoming is observing the similar good performance as slider OBA. Continue to build more small sample size eval to validate this gain.
- 2nd pc of data expected end of FW51'13.

Courtesy: Kiattisak S
and Tanut P

ETB2: Slider In Process and Outgoing Performance

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M8RHO

Group	30X SPI		100x Inspection		SFAVI		OBA (Contam)		OBA (Overall)	
	QTY	SPI %	Qty	Contam %	Qty	Contam %	Qty	Contam DPPM	Qty	Overall DPPM
ETB1	1000	0	8117	0.80	3750	1.5	250	0	250	0
ETB2			13186	0.77	13072	2.3				
Eval Average (ETB)	1000	0	21303	0.79	16822	1.9	250	0	250	0
Control (Baseline)		2-3%	1564194	1.4	540544	0.9	13900	1726	13900	3591
Delta (Ctrl - Eval) (ETB)			1542891	0.62	523722	-1.0	13650	1726	13650	3591

Control data taken from FW46 onwards

- Observed gain in 100x optical inspection in terms of contam yield loss.

Megalodon

Group	30X SPI		100x Inspection		SFAVI		OBA (Contam)		OBA (Overall)	
	QTY	SPI %	Qty	Contam %	Qty	Contam %	Qty	Contam DPPM	Qty	Overall DPPM
ETB2	1800	0	16341	0.4	16255	0.83	500	2000	500	4000
Eval Average (ETB)	1800	0	16341	0.4	16255	0.83	500	2000	500	4000
Control (Baseline)		2-3%	4884890	1.89	471348	3.41			81500	3524
Delta (Ctrl - Eval) (ETB)			4868549	1.49	455093	2.58			81000	-476

Control data taken from FW46 onwards

GrenadaMP2/M8BP2

Group	30X SPI		100x Inspection		SFAVI		OBA (Contam)		OBA (Overall)	
	QTY	SPI %	Qty	Contam %	Qty	Contam %	Qty	Contam DPPM	Qty	Overall DPPM
ETB1	400	0	4026	0.25	3640	0.7	250	0	250	0
ETB2	1500	0	7613	0.28	7525	1.8	250	4000	250	8000
Eval Average (ETB)	1900	0	11639	0.265	11165	1.25	500	2000	500	4000
Control (Baseline)		2-3%	501562	2.0	454123	2.0	8000	1250	8000	3125
Delta (Ctrl - Eval) (ETB)			489923	1.735	442958	0.75	7500	-750	7500	-875

Control data taken from FW46 onwards

OBA - ETB Package uPemto M8BP2

Lot Id		OBA QA 100X			
No	Lot Id	Sample Size	Qty Rej	Defect Type	
1	O2E133CN	50	0	0	
2	O2E12UCK	50	0	0	
3	O2E12RBY	50	1	pid (r4,c1)	
4	O2EHYWC2	50	1	cont abs (r12,c4)	
5	O2E12QCD	50	0	0	
TOTAL		250	2		
		DPPM	8000		

Next Steps

Q1'14: (Recipe3.1a)

- Low power manual 192kHz (WW09) (new)
- **IPA IRC for Dice/DEB**
- Microposit back pad wiping post SCBD (WW09) (new)
- Auto192kHz Vertical tank at post Sort & ABS Inspect (WW09- data for decision)
- 1st SA at post Sort (per original 3.1)
- Eliminate 1st Tooltek (per original 3.1)
- Auto192kHz moved to pre ABS Inspect with SA solvent clean as last operation (new)

Q2'14 (Oct'13): Recipe 3.2

- IRC Cyclohexane to replace IRC IPA at HMR & DEB (100k – Sept, Oct implementation)
- No sonic at Slider Dismount for uPemto (ceramic s/block) (WW16)
- Post dice/DEB manual 192khz elimination for complexity reduction
- **Modification or chemistry/rinse for manual 192kHz**
- **Micro90 Aq Tooltek**

Q3/Q4'14: (BIC Process) BIC Recipe Demo

- **Solvent sonic brush (post SCBD, post ATS, final clean)**
- **Solvent emersion brush (post SCBD, post ATS, final clean)**
- **Aqueous sonic brush (post SCBD, post dice/DEB, EOL clean)**

Product Name: Grenada BP2

Approval Date: January, 15, 2014

Design Center: LCO

Goal: Authorizes CTU's and Volume Shipments to Disty and OEM

Volume Factory: Korat, Wuxi, Suzhou

Configuration: .5,1,2,3TB

Design Center Approval:

Pat Dewey

Pat Dewey

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Exceptions Approval for CTU/ SAD NA

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SVP, Drive Asia Ops

Grenada BP2

Retail SAD Ship Approval Document

November 22, 2013

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FED_SEAG0057297

Product Name: Bacall BP2

Approval Date: January, 15, 2014

Design Center: LCO

Goal: Authorizes CTU's Shipments to Disty and OEM

Volume Factory: Korat, Wuxi, Suzhou

Configuration: 1,2,3TB

Design Center Approval:

Pat Dewey

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Grenada BP2

Retail SAD Ship Approval Document

November 22, 2013

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Plastic DSP Gate Update

January 15, 2014

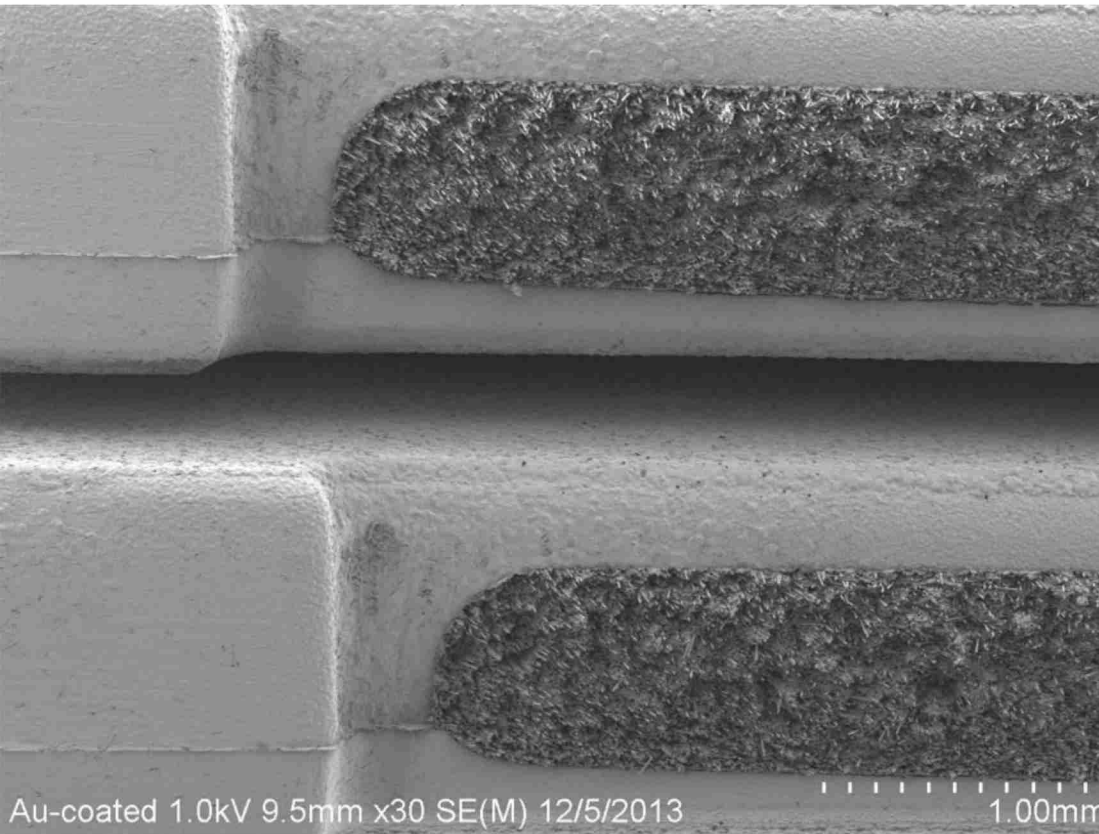


Steve Martin, John Alonzo, Katrina Killough, Joanne Larson, Chris Dion, Sonia Marrero, Rick Rupp, James Dunckley, Greg Schultz, Lori Antolec



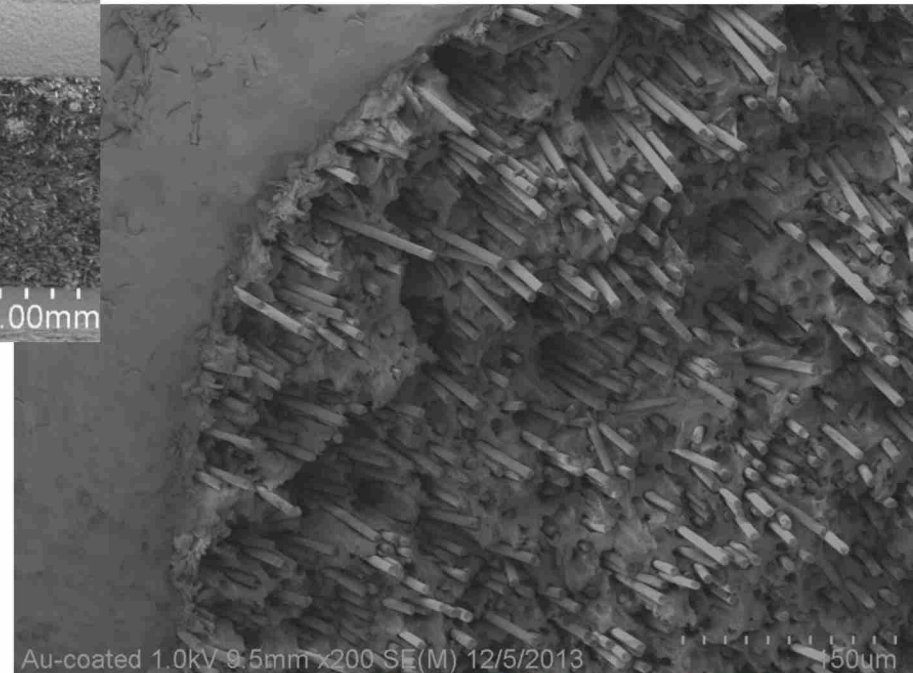
SEM Direct Inspection: Hi-P Plastic DSP's for Grenada BP – Gate Region

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Problem: Manually degated plastic DSPs pose significant particle risk.

Strategy: Modify gate surface condition to mitigate risk.



SEM images: Katrina Killough, Joanne Larson

Gate Improvement Options

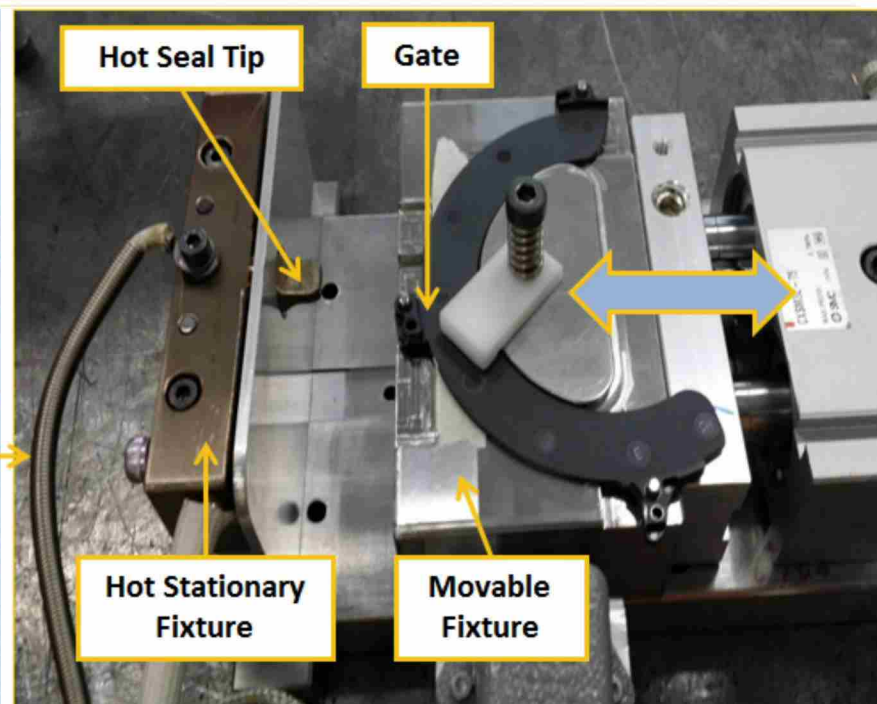
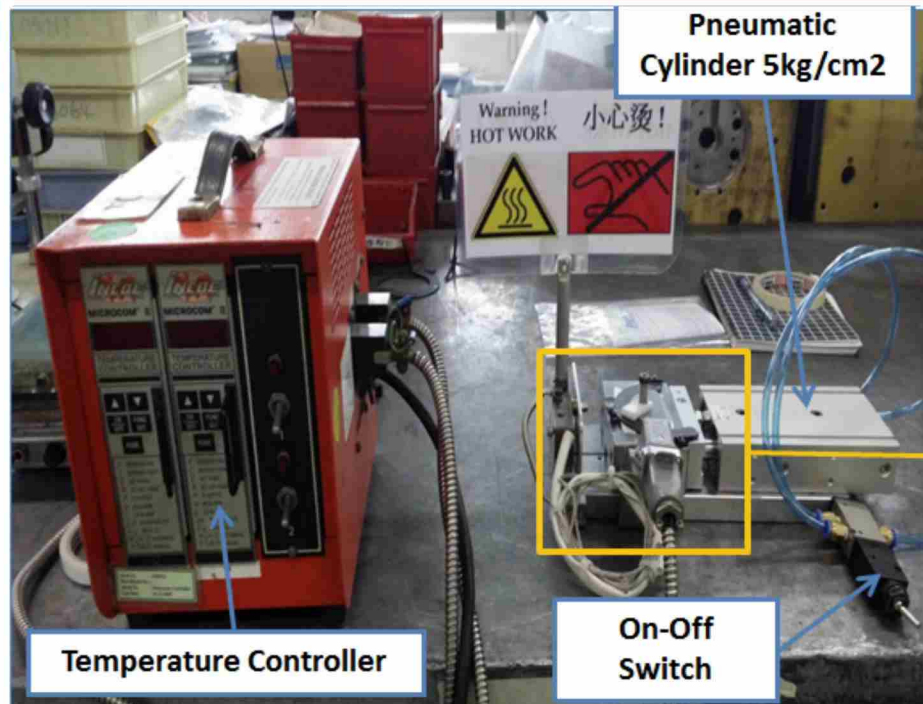
Process	Gate Condition	Initial LPC (0.3um, 68kHz)	Process Maturity / UPH	Comments
Manual Degate Only	Fully Exposed	Pass	Excellent	
Manual Degate + Hot Seal	> 90% sealed	Pass	Very Good	
Manual Degate + Epoxy coating	~100% sealed	Pass	Fair	Outgassing risk & Poor dimensional capability so far
Manual Degate + Ultrasonic Welding	? (unknown)	? (unknown)	Fair	Update by Jan 21

- **Hot Seal is primary path. Other options that will continue to be tracked are adhesive coating and ultrasonic welding.**
- **HiP preparing 2000 pc. Cavity 3 with Hot Seal method, target to be in Korat by end of WW 30.**

Hot Seal Assembly

Best Process for 300C & Seals
HiP also pursuing seal shape optimization

HiP



Temperature controller set at required sealing temperature

Part located on the movable fixture

Activate Pneumatic Cylinder to perform the hot sealing process

Part on the movable fixture will be pressed against the hot seal at the gate area

The movable fixture will be moved away from the stationary seal after a predefined time

Part hot seal completed

1

2

3

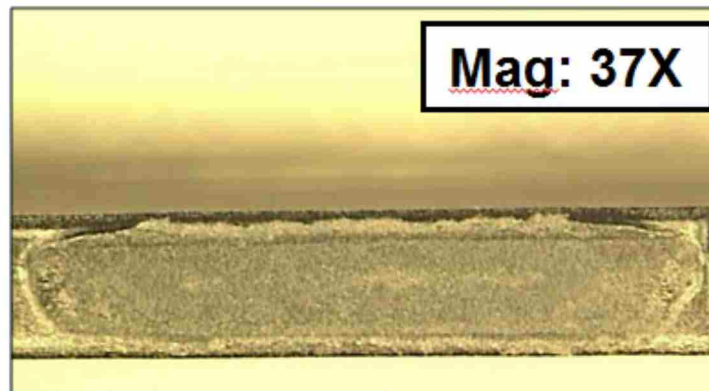
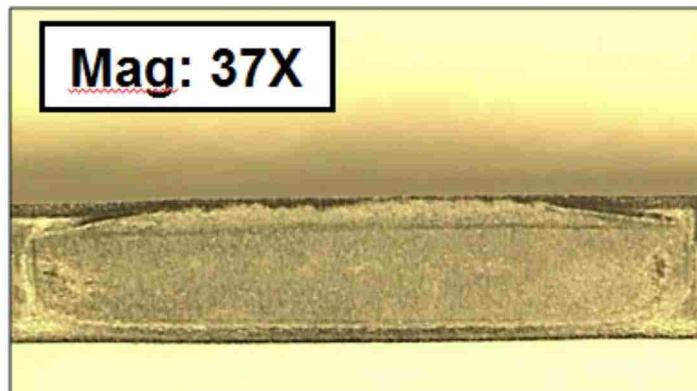
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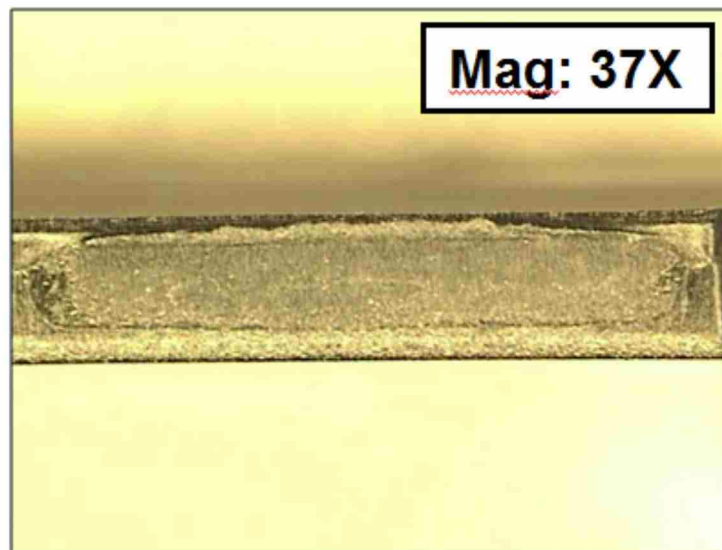
3-6. Manual De-gate + Hot Seal 300° C

HiP



- Best Process so far
- LCO SEM inspection of parts (initial and washed) WW30
 - HiP also pursuing seal shape optimization

Hot seal at 300° C for 3 seconds
appears to cover almost 95% of the
de-gated area well. The overflows are
within the blade thickness.



	January			February				March				April				May			
	WW29	WW30	WW31	WW32	WW33	WW34	WW35	WW36	WW37	WW38	WW39	WW40	WW41	WW42	WW43	WW44	WW45	WW46	WW47
2K GBP2 samples to Korat, "type 1" Hot Seal																			
"type 2" Hot Seal development																			
Hot Seal Process DOE (% coverage & LPC)																			
Adhesive coating LCO MSL results																			
Evaluate effectiveness of ultrasonic weld																			
HiP: samples for Transport ODT study																			
Korat: Transport ODT study (vs. controls)																			
HiP process bringup for production readiness																			
Grenada BP2 Production Process Qual build																			
Crawford Gen 3 build																			

•Comments:

- Final hot seal process to be optimized to minimize LPC and maximize % gate seal.
- Adhesive and ultrasonic options will continue to be explored parallel to primary path.
- Schedule shows GBP2 final process qual after a T-ODT study, but can potentially happen in parallel.
- T-ODT study: cast vs. manual degate vs. hot seal. Need a place to ship ODT passers.
- FEP still refining pad tilts and blade heights. Target dimensionally capable, improved gate parts in Q4.

Grenada/ Bacall BP2 SAD Update

January 14, 2014



	Volume	Phase 0	Phase 0 Update Aug 2013	SAD Update Jan 2014	Delta
-10%	Volume	103M	106M	104M	-1M
-10%	Revenue	5,817.9 M	6,643.2 M	6,642.1 M	-\$1.1M
-2%	Gross Margin %	25%	32%	30%	-2%
+2%	TVC 3 RD QTR	\$29.31	\$28.21	\$25.80	\$24.1
+2%	TVC At SAD	\$32.04	\$29.05	\$26.90	\$-2.15
+10%	Number of SKU's	21	24	24	0



Within Variance

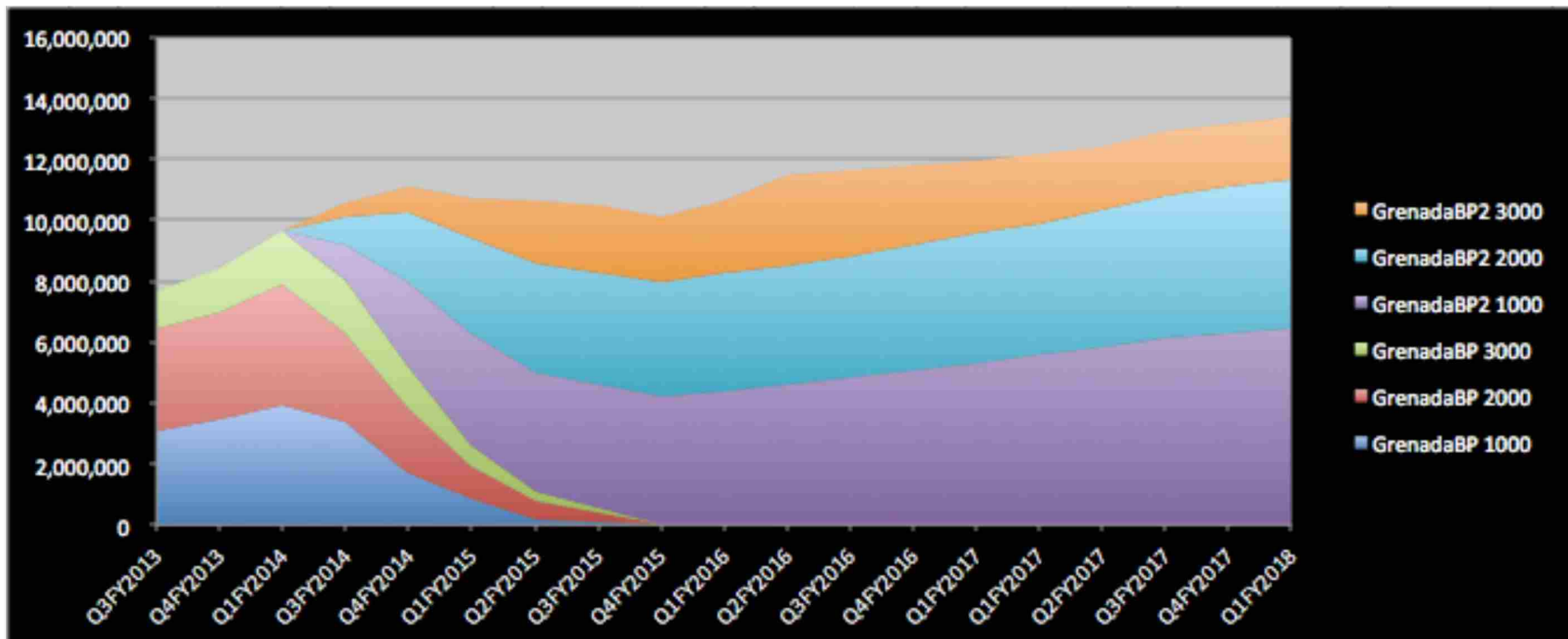


Outside of Variance

Variance explanation

- Volume is down due to Ramp adjustment from Q2 to Q3
- Revenue is down to Ramp adjustment and GM % reduction
- GM % reduction is due to fully burden cost increase.
 - Factory Utilization decrease raised fully burden cost

Grenada BP1.5 to BP2 Transition



- Source December Revplan
 - Outer Quarters are from Feb LRP
 - 3TB Outer Quarters volumes are 50% of total market (STX Market Research)

Grenada BP2 Financial Summary

Financial Metrics GrenadaBP2 3D												
	Q1CY14	Q2CY14	Q3CY14	Q4CY14	Q1CY15	Q2CY15	Q3CY15	Q4CY15	Q1CY16	Q2CY16	Q3CY16	
	Q3FY14	Q4FY14	Q1FY15	Q2FY15	Q3FY15	Q4FY15	Q1FY16	Q2FY16	Q3FY16	Q4FY16	Q1FY17	
Total Revenue	94.1 M	279.7 M	443.8 M	508.6 M	658.2 M	665.0 M	702.9 M	770.1 M	769.7 M	774.3 M	775.7 M	6,442.1 M
Total TVC	40.4 M	124.4 M	196.8 M	222.5 M	279.1 M	280.7 M	293.8 M	317.1 M	316.4 M	317.7 M	317.7 M	2,706.7 M
Total COGS	64.4 M	197.9 M	317.1 M	361.4 M	462.0 M	465.4 M	489.5 M	532.8 M	531.4 M	533.4 M	533.2 M	4,488.6 M
Total CM	53.8 M	155.3 M	247.0 M	286.0 M	379.1 M	384.3 M	409.0 M	452.9 M	453.3 M	456.6 M	458.1 M	3,735.4 M
CM%	57%	56%	56%	56%	58%	58%	58%	59%	59%	59%	59%	58%
Total GM	29.7 M	81.8 M	126.8 M	147.1 M	196.2 M	199.6 M	213.3 M	237.2 M	238.3 M	240.9 M	242.5 M	1,953.5 M
GM%	32%	29%	29%	29%	30%	30%	30%	31%	31%	31%	31%	30%

- Gross Margin of 30%.
- Average TVC Erosion holds at about 1.3%
- Financials based on 1/2/3TB Native Configs, 500GB and 2TB Weighted Cost based on volume of 1HD 500GB and 3D 4 Hd 2TB Grenada BP2 Volumes needed to consume SSW.

Grenada BP2 SKU Complexity Report

	CUSTOMER UNIQUE RESTRICTIONS																					
GrenadaBP2	Materials								BUILD	TEST		CONFIG	LABEL		MFG Site			GrenadaBP2	GrenadaB	Mean	Complexit	Other Ops
Customers	HSA Head	Suspension	PreAmp	Media	MBA	Cover	PCBA	Other	Bal Control	GOTF	CustTest	F3	Drive	Case	SUZ	Wuxi	TTk	Vol Units Est (Kaufman)	GrenadaB P2 SKU Count (Phase0)	Vol/SKU (Phase0)	y Cost Model	Complexity Cost
																					Per Unit	Per Unit
	NLL									NLL	Blue	Spec						-	-	#DIV/0!	#DIV/0!	
	Apple							Blk Label		OEM1	Blue Nun	Spec						2,773,320	6	462,220	\$ 1	
	HP											Spec						3,705,890	4	926,473	\$ 0	
	Lenovo												Spec					4,227,038	3	1,409,013	\$ 0	
	Std OEMs																	30,565,846	3	10,188,615	\$ 0	
	Disty																	54,548,836	4	13,637,209	\$ 0	
	Retail																	7,348,719	3	2,449,573	\$ 0	
TOTAL																	103,169,649	23	4,485,637			

GrenadaBP2 Volume through FY15

By Segment

Product	Channel	Segment	GB	Vol Q214	Vol Q314	Vol Q414	Vol Q115	Vol Q215	Vol Q315	Vol Q415	Q1 FY16	Q2 FY16	Q3 FY16	Q4 FY16	Q1FY17
			500		26,000	700,000	700,000	700,000	700,000	700,000	700,000	700,000	700,000	700,000	700,000
GrenadaBP2	Disti		1000	0	715,699	1,467,482	1,975,000	2,076,113	2,179,918	2,288,914	2,403,360	2,523,528	2,649,704	2,782,189	2,914,675
			2000	0	425,579	1,129,783	1,350,000	1,576,575	1,655,404	1,738,174	1,825,083	1,916,337	2,012,154	2,112,761	2,213,369
			3000	0	114,560	457,192	600,000	1,025,439	1,076,557	1,016,518	1,160,741	1,514,600	1,409,795	1,312,242	1,214,689
	Disti Total			0	1,281,838	3,754,457	4,625,000	5,378,126	5,611,879	5,743,606	6,089,183	6,654,464	6,771,652	6,907,193	7,042,733
	OEM	DT	1000	0	0	350,000	1,498,638	1,698,638	1,783,569	1,872,748	1,966,385	2,064,704	2,167,940	2,276,337	2,384,734
			2000	0	0	380,000	1,058,500	1,289,925	1,354,421	1,422,142	1,493,249	1,567,912	1,646,307	1,728,623	1,810,938
			3000	0	0	100,000	225,000	838,995	880,819	831,696	949,697	1,239,218	1,153,468	1,073,653	993,837
	OEM Total			0	0	830,000	2,782,138	3,827,558	4,018,810	4,126,586	4,409,332	4,871,834	4,967,716	5,078,612	5,189,509
	SV	SV	1000	0											
			2000	0											
			3000	0											
	SV Total			0	0	0	0	0	0	0	0	0	0	0	0
	Retail	Retail	1000	0	0	100,000	100,000	125,000	125,000	45,000	18,750				
			2000	0	100,000	300,000	300,000	700,000	630,000	585,000	544,600	429,300	337,250	317,800	298,350
			3000	0	63,000	143,852	143,852	246,755	239,949	282,819	263,142	237,000	237,000	213,000	189,000
	Retail Total	Retail Total		0	163,000	543,852	543,852	1,071,755	994,949	912,819	826,492	666,300	574,250	530,800	487,350
Total	Total			0	1,444,838	5,128,309	7,950,989	10,277,440	10,625,637	10,783,011	11,325,007	12,192,598	12,313,618	12,516,605	12,719,591

- Source December 13 Revplan
- Will Consume WTF and SSW 500GB GrenadaBP2 in disti (Volumes Variable)

Complexity Matrix – Grenada BP2

Aug 6 2013 Phase 0 Update

Marketing Name		Formatted Capacity	Config	Product Cache	Apple	HP	Lenovo	STD OEM	Disty	Retail	Total
GrenadaBP2	1D	500	2.0A	64	0	0	0	0	1 (250K-1.5m qtr)	0	1
		1000	2.0A	64	2	1	1	1	1	1	7
	2D	2000	2.0A	64	0	0	0	0	0	1	1
		2000	2.5A	64	2	1	1	1	1	0	6
	3D	3000	2.0A	64		0	0	0	0	1	1
		3000	2.5A	64	3	2 (ISS no vol commit)	1	1	1	0	8
Grand Total					7	2	3	3	3	3	24

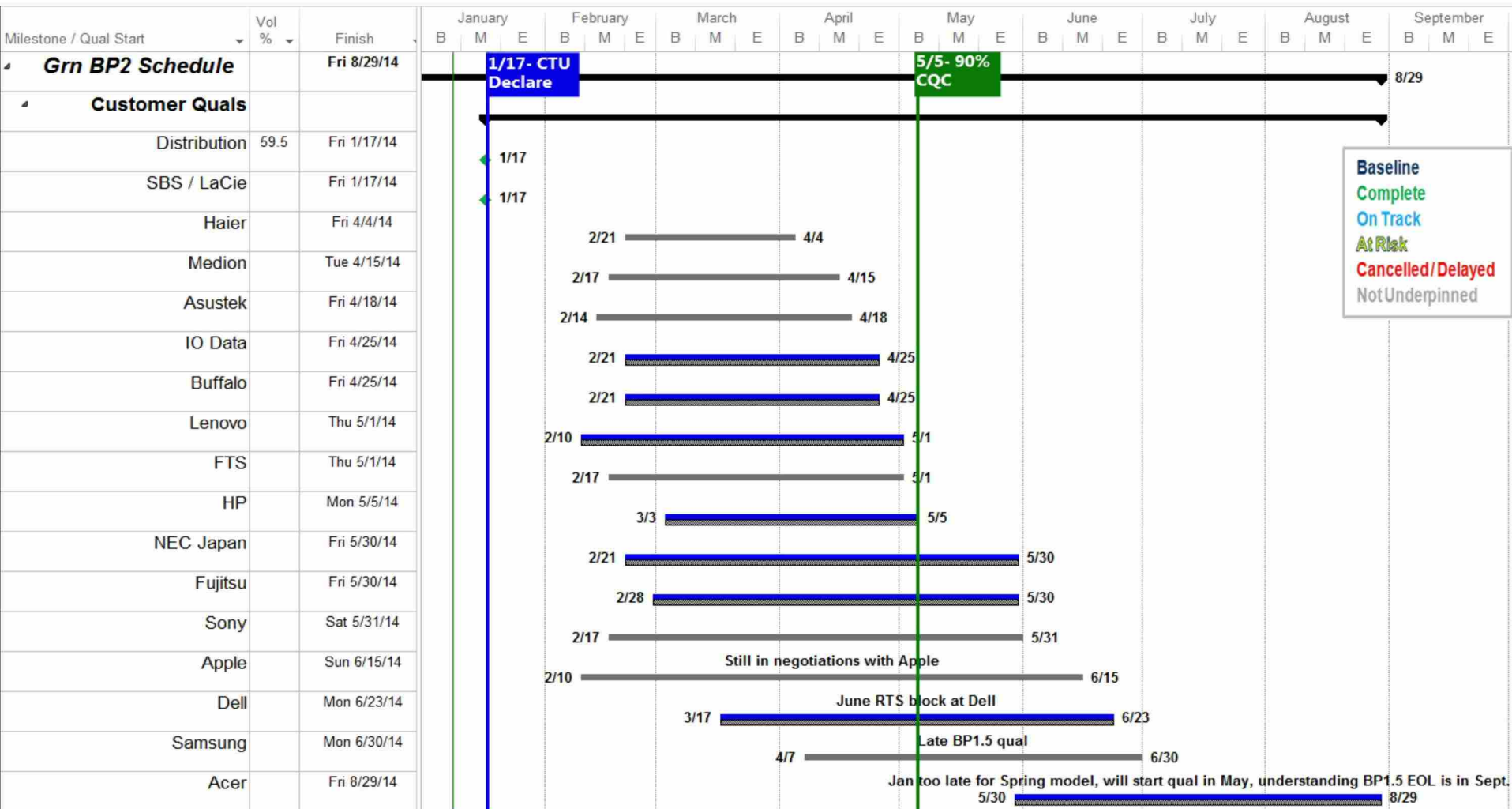
Dec 3 2013 Update

Marketing Name		Formatted Capacity	Config	Product Cache	Apple	HP	Lenovo	STD OEM	Disty	Retail	Total
GrenadaBP2	1D	500	2.0A	64	0	0	0	0	1 (250K-1.5m qtr)	0	1
		1000	2.0A	64	3	1	1	1	1	1	8
	2D	2000	2.0A	64	0	0	0	0	0	1	1
		2000	2.5A	64	2	1	1	1	1	0	6
	3D	3000	2.0A	64		0	0	0	0	1	1
		3000	2.5A	64	2	2 (ISS no vol commit)	1	1	1	0	7
Grand Total					7	2	3	3	3	3	24

- Move 1 Apple AppleCare requirement = 3.6V Tolerant from 3TB to 1TB

Grenada BP2 Customer Qualification Schedules

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Apple: STX communicated in August '13 that BP2 must be qualified by end of June to maintain supply continuity. Apple has still not agreed to this schedule.

Dell: have changed to quarterly block schedule, BP2 falls into CQ3 RTS block.

Lenovo: pulling for early start. Will ship CTUs concurrently with Lenovo EST testing.

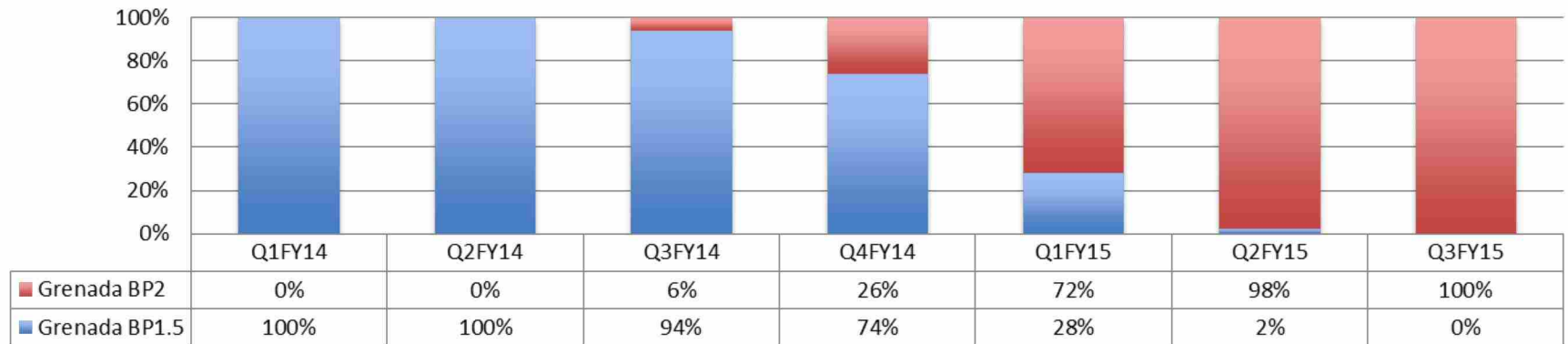
HP: Schedule underpinned. March start due to OEM RDT completion in Feb. CTUs ship late Feb.

Transition PTC 90

GrenadaBP1.5 to Grenada BP2 transition

				Q1FY14			Q2FY14			Q3FY14			Q4FY14			Q1FY15			Q2FY15			Q3FY15		
				JULY '13	AUG '13	SEP '13	OCT '13	NOV '13	DEC '13	JAN '14	FEB '14	MARCH '14	APR '14	MAY '14	JUNE '14	JULY '14	AUG '14	SEP '14	OCT '14	NOV '14	DEC '14	JAN '15	FEB '15	MAR '15
Buffalo	BP1.5			100%			100%	100%		100%				90%		25%			0%			0%		
	BP2	1/15	3/1	0%			0%	0%		0%				10%		75%			100%			100%		
Fujitsu	BP1.5			100%			100%	100%		100%				90%		50%			10%			0%		
	BP2	1/15	4/1	0%			0%	0%		0%				10%		50%			90%			100%		
HP	BP1.5			100%			100%	100%		100%				90%		25%			0%			0%		
	BP2	1/15	3/1	0%			0%	0%		0%				10%		75%			100%			100%		
IOData	BP1.5			100%			100%	100%		100%				90%		25%			0%			0%		
	BP2	1/15	3/1	0%			0%	0%		0%				10%		75%			100%			100%		
Lenovo	BP1.5			100%			100%	100%		100%				90%		50%			0%			0%		
	BP2	1/15	3/1	0%			0%	0%		0%				10%		50%			100%			100%		
Lacie	BP1.5			100%			100%	100%		100%				50%		5%			0%			0%		
	BP2	1/15	3/1	0%			0%	0%		0%				50%		95%			100%			100%		
Medion	BP1.5			100%			100%	100%		100%				25%		0%			0%			0%		
	BP2	1/15	3/1	0%			0%	0%		0%				75%		100%			100%			100%		
NEC	BP1.5			100%			100%	100%		100%				90%		50%			10%			0%		
	BP2	1/15	4/1	0%			0%	0%		0%				10%		50%			90%			100%		
Samsung	BP1.5			100%			100%	100%		100%				90%		50%			10%			0%		
	BP2	1/15	3/1	0%			0%	0%		0%				10%		50%			90%			100%		
Sony	BP			100%			100%	100%		100%				90%		50%			10%			0%		
	BP2	1/15	4/1	0%			0%	0%		0%				10%		50%			90%			100%		
				Q1FY14			Q2FY14			Q3FY14			Q4FY14			Q1FY15			Q2FY15			Q3FY15		
				100%			100%			94%			74%			28%			2%			0%		
				0%			0%			6%			26%			72%			98%			100%		

GrenadaBP2 Transition



Seagate Confidential

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Bacall BP2 Phase Gate Contract Delta Tracking

	Volume	Phase 0	Phase 0 Update Aug 2013	SAD Update Jan 2014	Delta
-10%	Volume	26M	29M	28M	-1M
-10%	Revenue	1,273 M	1,858 M	1,829 M	-29M
-2%	Gross Margin %	24%	36%	35%	-1%
+2%	TVC 3 RD QTR	\$26.77	\$27.38	\$26.60	\$-0.78
+2%	TVC At SAD	\$28.34	\$28.74	\$27.32	\$-1.42
+10%	Number of SKU's	17	21	21	0



Within Variance

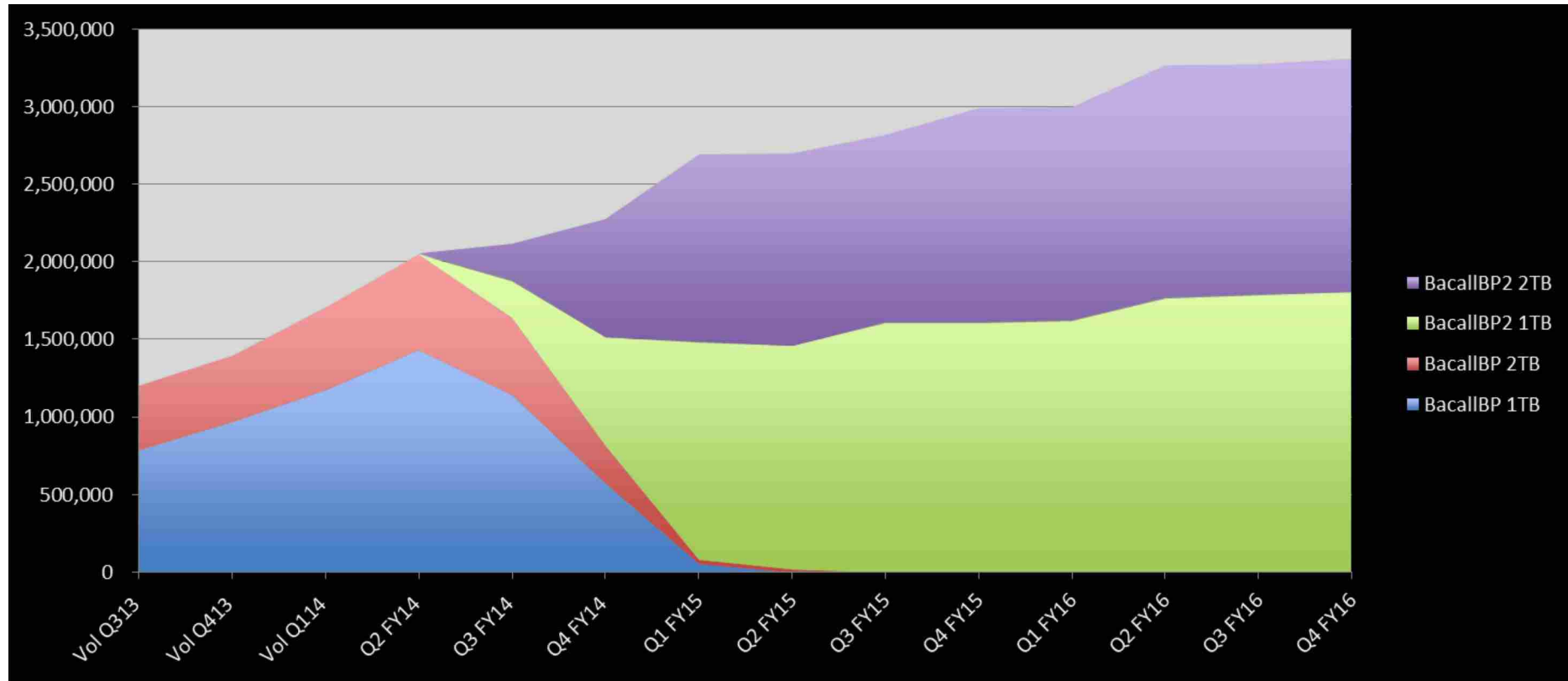


Outside of Variance

Variance Explanation

- Volume decrease due to Ramp push out to Q4
- GM% and Revenue decrease due to Ramp push out to Q4 and fully burden cost increase

Bacall BP to BP2 Transition



- Assumptions:
- Video = 55% share, SV = 60% share, NAS = 50% share

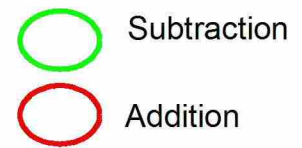
Bacall BP2 Financial Summary

Financial Metrics Bacall 3D											
	Q1CY14	Q2CY14	Q3CY14	Q4CY14	Q1CY15	Q2CY15	Q3CY15	Q4CY15	Q1CY16	Q2CY16	
	Q3FY14	Q4FY14	Q1FY15	Q2FY15	Q3FY15	Q4FY15	Q1FY16	Q2FY16	Q3FY16	Q4FY16	
Total Revenue	1.6 M	94.1 M	212.1 M	233.1 M	236.3 M	235.5 M	231.2 M	208.5 M	193.4 M	183.9 M	1,829.7 M
Total TVC	0.7 M	36.3 M	83.7 M	91.7 M	92.1 M	91.4 M	89.7 M	83.2 M	78.4 M	75.2 M	722.3 M
Total COGS	1.1 M	59.6 M	138.2 M	151.6 M	152.8 M	152.1 M	149.4 M	137.8 M	129.3 M	124.0 M	1,195.9 M
Total CM	0.9 M	57.8 M	128.3 M	141.4 M	144.2 M	144.1 M	141.5 M	125.3 M	115.1 M	108.7 M	1,107.3 M
CM%	57%	61%	61%	61%	61%	61%	61%	60%	59%	59%	61%
Total GM	0.4 M	34.5 M	73.9 M	81.5 M	83.5 M	83.4 M	81.8 M	70.8 M	64.1 M	59.9 M	633.7 M
GM%	28%	37%	35%	35%	35%	35%	35%	34%	33%	33%	35%

- Gross Margin of 35%.
- AUC Erosion starts out at 8% Q3FY14 and works down to 1.2% quarter over quarter by Q3FY15
- Financials based on 1 & 3TB Native Configs, 2TB Weighted Cost based on volume of 1HD 500GB and 3HD 2TB Grenada BP2 Volumes needed to consume SSW.

Bacall BP2 SKU Complexity Report

	CUSTOMER UNIQUE RESTRICTIONS																					
BacallBP2	Materials							BUILD	TEST		CONFIG	LABEL		MFG Site			BacallBP2	BacallBP2	Mean	Complexity	Other Ops	
Customers	HSA Head	Suspension	PreAmp	Media	MBA	Cover	PCBA	Other	Bal Control	GOTF	CustTest	F3	Drive	Case	SUZ	Wuxi	TTk	Vol Units Est (Kaufman)	SKU Count (Phase0)	Vol/SKU (Phase0)	Cost Model	Complexity Cost
																				Per Unit	Per Unit	
	NAS																	4,644,712	2	2,322,356	\$ 0	
	STD OEM 1.5																	730,097	2	365,049	\$ 1	
	Echostar/ Dish																	1,498,230	3	499,410	\$ 1	
	Technicolor & Direct TV																	619,310	2	309,655	\$ 1	
	Echostar/ Bell																	300,000	1	300,000	\$ 1	
	Surveillance																	3,899,578	3	1,299,859	\$ 0	
	STD OEM 6G																	1,676,385	3	558,795	\$ 0	
STD OEM 3G																	15,087,469	2	7,543,735	\$ 0		
Disty																		1,182,864	3	394,288	\$ 1	
TOTAL																		29,638,646	21	1,411,364		



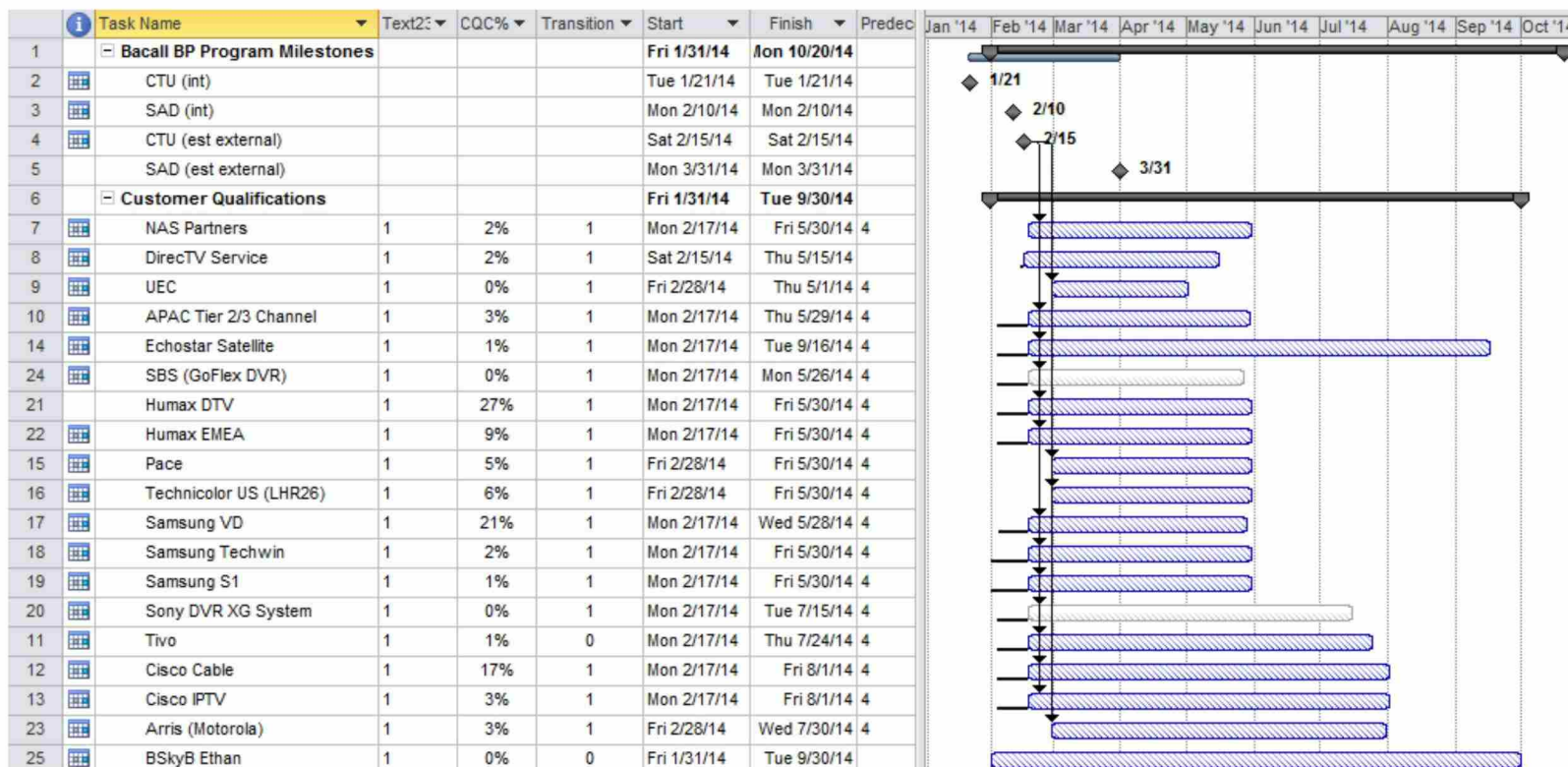
Complexity Matrix – Bacall BP2

Phase 0

Marketing Name	Formatted Capacity	Product Cache	Sony	Panasonic	Echostar	Thompson	STD OEM 6G	STD OEM 3G	SV	NAS	Disty	Total
BacallBP2	1000	64	1	1	1	1	1	1	1	0	1	8
	2000	64	1	1	1	1	1	1	1	1	1	9
Grand Total			2	2	2	2	2	2	2	1	2	17

Aug 6 2013

Marketing Name	Formatted Capacity	Product Cache	STD OEM 1.5G	Echostar/Bell	Echostar/Dish	Technicolor	STD OEM 6G	STD OEM 3G	SV	NAS	Disty	Total
BacallBP2	1D 1000	64	1	1 (30-60K-qtr)	1	1	1	1	1	0	1	8
	2D 2000	64	1		1	1	1	1	1	1	1	8
	3D 3000	64	0		1	0	1	0	1 (180K-qtr)	1 (260K-qtr)	1 (17K-qtr)	5
Grand Total			2	0	3	2	3	2	2	1	2	21



BP2 RDT 400K Demo Timing – Jan 21 (or sooner)

DVR – In drive diagnostic readiness being discussed versus the latest Google requirements; Grease bump mitigation being included in Jan 15 Humax 2TB units; BSKYB 1TB drives needed Jan 31; Drive pairing missing from base STD OEM offering, so working to understand this intercept

NAS – Gated by Rapid RAID Rebuild functionality and performance test comparisons across segments; Segment builds being initiated ~Jan 6; Rapid RAID Rebuild feature readiness Jan 10 with testing estimated to complete late Jan

SV – Apr 1 (external); Internal dates to be solidified by PLM/DE team

Baseline
Complete
On Track
At Risk
Qual Cancelled/ Delayed
Not Underpinned






















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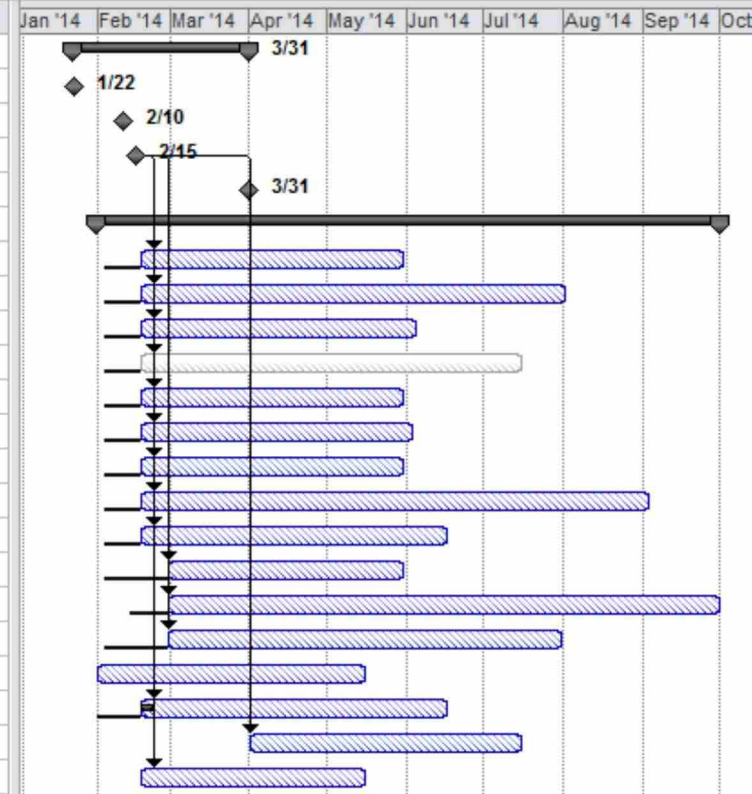
90% CQC Sept '14
BP EOL ~ Dec '14

Bacall BP2 - 2TB Qualifications

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Jan 3

		Task Name	Transition	CQC	Start	Finish	Predecessors
1		Bacall BP Program Milestones			Wed 1/22/14	Mon 3/31/14	
2		CTU (int)			Wed 1/22/14	Wed 1/22/14	
3		SAD (int)			Mon 2/10/14	Mon 2/10/14	
4		CTU (est external)			Sat 2/15/14	Sat 2/15/14	
5		SAD (est external)			Mon 3/31/14	Mon 3/31/14	
6		Customer Qualifications			Fri 1/31/14	Tue 9/30/14	
7		Google Fiber (Humax)	1	3%	Mon 2/17/14	Fri 5/30/14	4
8		Cisco	1	8%	Mon 2/17/14	Fri 8/1/14	4
9		APAC Tier 2/3 Channel	1	5%	Mon 2/17/14	Wed 6/4/14	4
10		Sony XG System	1		Mon 2/17/14	Tue 7/15/14	4
11		Samsung VD	1	2%	Mon 2/17/14	Fri 5/30/14	4
12		Samsung Techwin	1	1%	Mon 2/17/14	Mon 6/2/14	4
13		Samsung S1	0	4%	Mon 2/17/14	Fri 5/30/14	4
14		Echostar	1	41	Mon 2/17/14	Tue 9/2/14	4
15		Panasonic	1	3%	Mon 2/17/14	Mon 6/16/14	4
16		Pace	1	8%	Fri 2/28/14	Fri 5/30/14	4
17		BSkyB	1	7	Fri 2/28/14	Tue 9/30/14	4
18		Arris (Motorola)	0	2%	Fri 2/28/14	Wed 7/30/14	4
19		Humax EMEA	1	1%	Fri 1/31/14	Thu 5/15/14	
20		Humax DirecTV	0	4%	Mon 2/17/14	Mon 6/16/14	4
21		Taiwan NAS Partners	1	5%	Tue 4/1/14	Tue 7/15/14	4
22		Taiwan Tier 2	1	4%	Mon 2/17/14	Thu 5/15/14	4



BP2 RDT 400K Demo Timing – Jan 21 (or sooner)

DVR – In drive diagnostic readiness being discussed versus the latest Google requirements; Grease bump mitigation being included in Jan 15 2TB Humax units; Drive pairing missing from base STD OEM offering, so working to understand this intercept

NAS – Gated by Rapid RAID Rebuild functionality and performance test comparisons across segments; Segment builds being initiated ~Jan 6; Rapid RAID Rebuild feature readiness Jan 10 with testing estimated to complete late Jan

SV – Apr 1 (external); Internal dates to be solidified by PLM/DE team

90% CQC Sept '14
BP EOL ~ Dec '14

Baseline
Complete
On Track
Qual Cancelled/Delayed
Not Underpinned

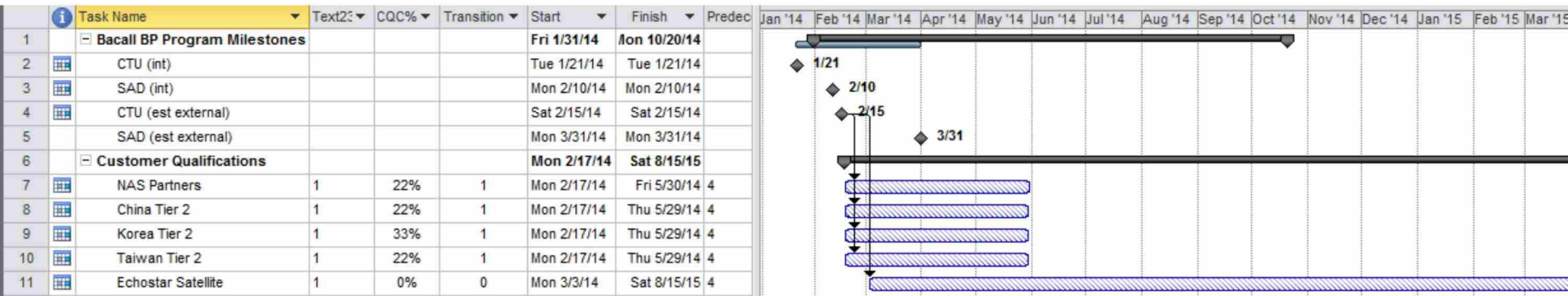
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FED_SEAG0057320

Bacall BP2 - 3TB Qualifications

Jan 3



BP2 RDT 400K Demo Timing – Jan 21 (or sooner)

DVR – In drive diagnostic readiness being discussed versus the latest Google requirements; Grease bump mitigation being included in Jan 15 2TB Humax units; Drive pairing missing from base STD OEM offering, so working to understand this intercept

NAS – Gated by Rapid RAID Rebuild functionality and performance test comparisons across segments; Segment builds being initiated ~Jan 6, Rapid RAID Rebuild feature readiness Jan 10 with testing estimated to complete late Jan

SV – Apr 1 (external); Internal dates to be solidified by PLM/DE team

90% CQC Sept '14
BP EOL ~ Dec '14

Baseline
Complete
On Track
Out of Range
Qual Cancelled/ Delayed
Not Underpinned

Seagate Confidential

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Grenada BP2 and Bacall BP2 Highlights

- **CRT1 Demo'ed 267K, Potential 333K for Grenada, 749 DPPM, recommend CTU and SAD Declare**
- **CRT1 Demo'ed 486K, Potential 710K for Bacall, 437 DPPM, recommend CTU!**

GrenadaBP2:

- CRT 1 has achieved CTU metrics. Targeting CTU Declare WW28
 - Investigating a possible Disty SAD from CRT1.
- OEM FW delivered and is being ECR'ed this week
- 1st CTU shipments are for Apple in WW30
 - AppleCare GBP2 option is being underpinned for early Feb CTUs
- Remaining OEM CTUs aligned to start shipping ~Feb 10th
- Regression Qual on Plastic DSP for Cleanliness and Sealing. CT would like to Seat Plastic DSP in the Feb. CTU's. Not approved for SAD. Plastic DSP would be a CTU Risk.
- Grenada 90% CQC anticipated in June driven by Dell, Lenovo and HP
 - Dell Qual gates 90% CQC and aligns to mid June RTS

BacallBP2:

- Initial OEM FW and feature sets for CTUs delivered this week
- 1st CTUs shipments to Humax & B SkyB in 2nd half of Jan
 - Last CTU date is 4/1 for SV
- Bacall 90% CQC anticipated in July-August based on longer qual times
 - Customer qual timelines are estimates and not fully underpinned

Metric Highlights

Next Phase Gate/Schedule

DPPM:

•Integration

Korat	Wuxi	Suzhou	"ODT"
NA	NA	NA	749

•Goal:

Gen3	SBS	CTU	SAD	Vol.
10k	8k	4k	2k	500

MTBF:

•Demo:

Validated	Potential
267K	333K

•Goal:

Gen 2:	Gen 3:	SAD
50k	100k	250k

TVM:

Pass Rate	Gen3 Goal:
1D: 98%	95%
2D: 99%	95%
3D: 99%	95%

Milestone

Date

Gen3 Declare

1/15/2014

CTU Declare

1/15/2014

Issues

- Integration DPPM – Completed. 1335 tested 1 failures
 - S/N Z5000DXK - EC 7 SOF397304 Media Defect – NMD MSD
 - S/N W56000TW – EC 7 SOF398892 UDE FW Bug Fix – Passed retest
- RDT: CRT 1.0 started on 11/19. 1058 drives running G101DE and x64A servo code. 1197 hrs. 14 failures.
- Particle and Contamination Reduction plan – 6 [W56000T0 - 79] [W56000V9 - 522] [W56000VZ - 7] [Z4X0026C - 43] [Z4Z00EZ4 - 119] [Z4Z00F27 - 624]
- Data Compare Error – 1 [Z4X001YR - 188]
- Head Improvements with Stability 2 – 1 [Z5000E4P - 464]
- SWOT fails due to PZT oxidation in BP2 [ISS8796] – 1 [Z5000E6P - 156]
- Pre comp settings change – 1 [Z5000DZ6 - 249]
- UDE Firmware Bug FIX [ISS8594] – 1 [W56000X8 - 4]
- Unclassified – 1 [Z4X0027Y - 708]
- Write - Aborted Write – Uncontrolled – 1 [Z4Z00EWV - 82]
- ZAP Saturation Fail in CRT1 [ISS8710] - 1 [Z4Z00F31 - 56]
- TVM
 - SZGGD11130A – 10 drives – Passed
 - KTGGD11049A – 10 drives – Passed
 - KTGGD21082A – 10 drives – Passed
 - KTGGD21050A – 30 drives – Failed – 7 failures xx4C Servo Fixed 6 of them.
 - KTGGD41117A – 30 drives – Passed
 - WUGGD41132A – 20 drives – Failed – 1 failure
 - WUGGD41134A – 30 drives – Passed
 - KTGGD61118A – 30 drives – Passed
 - KTGGD61055A – 30 drives – Failed – 1 failure
 - WUGGD61135A – 30 drives – Passed
- Topple
 - Z5000E6H – EC 7 SOF401030 Plastic DSP

FA / Issue Summary

Open PFLs

Total	< 7 Days	7-15 Days	15-21 Days	21-28 Days	> 28 Days
19	5	14	0	0	0

Issues

Total	Open	CA Imp.	CA Ver.	Unresolved
0	0	0	0	0

SSO:

•None

DA:

•None

Grenada BP2 CRT 1.0 MTBF/FE

Title: Grenada BP2 CRT 1.0 MTBF/FE Table

AFR(1st year Weibull)	1.039%
MTBF (1st year Weibull)	229765
2Yr FR (2nd Year Weibull)	1.363%
3Yr FR (3rd Year Weibull)	1.598%
4Yr FR (4th Year Weibull)	1.788%
5Yr FR (5th Year Weibull)	1.951%

From all fails Weibull MLE

1058	Qty
14	Failure Qty
2400	POH/Year
0.394	Weibull Beta
1197	Average Test Hours
01/14/14	Date



Issue	Corrective Action	Fix Validation	Qty	Mode AFR %	FE %		Reduced AFR		SN/TTF
					Demo'd	Potential	Demo'd	Potential	
Particle and Contamination Reduction plans for FOF lines (Prime Phase 10) [ISS8758]	CSI EE auto-self cleaning AUV rabbit clean BUD EE gripper particle reduction(Auto Dycem Cleaning) Gen2 Sleeve for GSS1 Gen2 BLMC Auto Cleaning Clamp Holder Washing Fixture Enclosure Cover plate for GSS Screw driver motor Design a J-Box and add vacuum to block and remove particles for DS2 Bracket with vacuum to remove particles for DS2 2x filtration washing system	-	6	0.43%	.	15%	0.43%	0.36%	[W56000T0 - 79] [W56000V9 - 522] [W56000VZ - 7] [Z4X0026C - 43] [Z4Z00E24 - 119] [Z4Z00F27 - 624]
Data - Compare Error	In Retest	-	1	0.07%	.	.	0.07%	0.07%	[Z4X001YR - 188]
Head Improvements with Stability 2 and test	Stability 2 and test enhancements	-	1	0.07%	.	40%	0.07%	0.04%	[Z5000E4P - 464]
SWOT fails due to PZT oxidation in BP2 [ISS8796]	PZT oxidation leading to SWOTs in BP2. Ongoing monitoring	-	1	0.07%	.	40%	0.07%	0.04%	[Z5000E6P - 156]
Pre comp settings change leading to some of the weak write mitigation [ISS8798]	Higher pre-comp values in RAP	-	1	0.07%	.	80%	0.07%	0.01%	[Z5000DZ6 - 249]
UDE Firmware Bug FIX [ISS8594]	Reli and SIE verification runs with new F3 code.	-	1	0.07%	100%	100%	0.00%	0.00%	[W56000X8 - 4]
UnClassified Failure	FA in Progress	-	1	0.07%	.	.	0.07%	0.07%	[Z4X0027Y - 708]
Write - Aborted Write - Uncontrolled	FA In progress	-	1	0.07%	.	.	0.07%	0.07%	[Z4Z00EWW - 82]
ZAP Saturation Fail in CRT1 [ISS8710]	ZAP Saturation check in T275 was disabled by mistake which led to this issue. Fix in PCO 4.3 with CL641737	-	1	0.07%	100%	100%	0.00%	0.00%	[Z4Z00F31 - 56]

Total Qty. 14

 AFR 0.90% 0.72%
 MTBF 267K 333K

Grenada BP2 CRT 1.0 168 hr. DPPM

Title: Grenada BP2 CRT 1.0 MTBF/FE Table

168hr DPPM

7561

1058

Qty

8

Failure Qty

01/14/14

Date



Issue	Corrective Action	Fix Validation	Qty	Mode DPPM	FE %		Reduced DPPM		SN/TTF
					Demo'd	Potential	Demo'd	Potential	
Particle and Contamination Reduction plans for FOF lines (Prime Phase 10) [ISS8758]	CSI EE auto-self cleaning AUV rabbit clean BUD EE gripper particle reduction(Auto Dycem Cleaning) Gen2 Sleeve for GSS1 Gen2 BLMC Auto Cleaning Clamp Holder Washing Fixture Enclosure Cover plate for GSS Screw driver motor Design a J-Box and add vacuum to block and remove particles for DS2 Bracket with vacuum to remove particles for DS2 2x filtration washing system	-	4	3781	.	15%	3781	3213.85	[W56000T0 - 79] [W56000VZ - 7] [Z4X0026C - 43] [Z4Z00EZ4 - 119]
SWOT fails due to PZT oxidation in BP2 [ISS8796]	PZT oxidation leading to SWOTs in BP2. Ongoing monitoring	-	1	945	.	40%	945	567	[Z5000E6P - 156]
UDE Firmware Bug FIX [ISS8594]	Reli and SIE verification runs with new F3 code.	-	1	945	100%	100%	0	0	[W56000X8 - 4]
Write - Aborted Write - Uncontrolled	FA in Progress	-	1	945	.	.	945	945	[Z4Z00EWV - 82]
ZAP Saturation Fail in CRT1 [ISS8710]	ZAP Saturation check in T275 was disabled by mistake which led to this issue. Fix in PCO 4.3 with CL641737	-	1	945	100%	100%	0	0	[Z4Z00F31 - 56]

Total Qty. 8

DPPM 5671 4725.85

Bacall BP2 CRT 1.0 Summary 1/14/2014

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Metric Highlights

Next Phase Gate/Schedule

DPPM:

•Integration

Korat	Wuxi	Suzhou	"ODT"
NA	NA	NA	437

•Goal:

Gen3	SBS	CTU	SAD	Vol.
15k	8k	4k	2k	500

MTBF:

•Demo:

Validated		Potential	
486K		710K	
Gen 2:	Gen 3:	CTU	SAD
100k	200k	400k	550k

TVM:

Pass Rate	Gen3 Goal:
1D: 97%	95%
2D: 100%	95%
3D: 100%	95%

FA / Issue Summary

Open PFLs

Total	< 7 Days	7-15 Days	15-21 Days	21-28 Days	> 28 Days
20	7	13	0	0	0

Issues

Total	Open	CA Imp.	CA Ver.	Unresolved
0	0	0	0	0

SSO:

•None

DA:

•None

Milestone

Date

Gen3 Declare 1/15/2014

CTU Declare 1/15/2014

Issues

• Integration DPPM – 1188 Completed. 3 failures

- Bad Writes - 1
- Weak Write - 1
- Head-Degraded Writer - 1

• RDT: CRT 1.0 started on 11/21. 985 drives running G101DE and x64A servo code. 1156 hrs. 14 failures

- Particle and Contamination Reduction plans – 4 [S5100EY6 - 42] [S5100F06 - 234] [W73001BA - 195] [W73001F3 - 303]
- Head Improvements with Stability 2 – 3 [W72001S8 - 83] [W73000V6 - 58] [W7300127 - 934]
- CCTO outlier fails in BP2 [ISS8795] – 2 [W7300125 - 751] [W730019F - 587]
- SWOT fails due to PZT oxidation in BP2 [ISS8796] – 2 [W72001EL - 4] [W73000W2 - 514]
- No Error or Symptom Found or Reported – 1 [W73000TP - 258]
- Write - Aborted Write – Controlled – 1 [S5100F83 - 7]
- Write - BAD Write – 1 [W73001MP - 7]

• TVM

- SZBGD21045A – 30 drives – Failed 1 Failure
- WUBGD41046A – 30 drives – Passed
- WUBGD61083A – 15 drives – Passed
- WUBGD61136A – 15 drives – Passed
- WUBGD61121A – 30 drives – Passed

• Topple

- S5100ENG – EC 7 SOF400173 672KHz Modulation
- S5100EZ0 – EC 7 SOF402206 Head-Degraded Reader

Bacall BP2 CRT 1.0 MTBF/FE

Title: Bacall BP2 CRT 1.0 MTBF/FE Table

AFR(1st year Weibull)	1.786%
MTBF (1st year Weibull)	486220
2Yr FR (2nd Year Weibull)	2.386%
3Yr FR (3rd Year Weibull)	2.825%
4Yr FR (4th Year Weibull)	3.185%
5Yr FR (5th Year Weibull)	3.494%

From all fails Weibull MLE

985	Qty
14	Failure Qty
8760	POH/Year
0.423	Weibull Beta
1156	Average Test Hours
01/14/14	Date



Issue	Corrective Action	Fix Validation	Qty	Mode AFR %	FE %		Reduced AFR		SN/TTF
					Demo'd	Potential	Demo'd	Potential	
Particle and Contamination Reduction plans for FOF lines (Prime Phase 10) [ISS8758]	CSI EE auto-self cleaning AUV rabbit clean BUD EE gripper particle reduction(Auto Dycem Cleaning) Gen2 Sleeve for GSS1 Gen2 BLMC Auto Cleaning Clamp Holder Washing Fixture Enclosure Cover plate for GSS Screw driver motor Design a J-Box and add vacuum to block and remove particles for DS2 Bracket with vacuum to remove particles for DS2 2x filtration washing system	-	4	0.49%	.	15%	0.49%	0.41%	[S5100EY6 - 42] [S5100F06 - 234] [W73001BA - 195] [W73001F3 - 303]
Head Improvements with Stability 2 and test enhancements [ISS8797]	Stability 2 and test enhancements	-	3	0.36%	.	40%	0.36%	0.22%	[W72001S8 - 83] [W73000V6 - 58] [W7300127 - 934]
CCTO outlier fails in BP2 [ISS8795]	Have 2 SWD retries before the drive enters RAW mode like BP	-	2	0.24%	.	100%	0.24%	0.00%	[W7300125 - 751] [W730019F - 587]
SWOT fails due to PZT oxidation in BP2 [ISS8796]	PZT oxidation leading to SWOTs in BP2. Ongoing monitoring	-	2	0.24%	.	40%	0.24%	0.15%	[W72001EL - 4] [W73000W2 - 514]
No Error or Symptom Found or Reported	In Retest	-	1	0.12%	.	.	0.12%	0.12%	[W73000TP - 258]
Write - Aborted Write - Controlled	FA in Progress	-	1	0.12%	.	.	0.12%	0.12%	[S5100F83 - 7]
Write - BAD Write	In Retest	-	1	0.12%	.	.	0.12%	0.12%	[W73001MP - 7]

Total Qty. 14

AFR 1.79% 1.23%
MTBF 486K 710K

Bacall BP2 CRT 1.0 168 hr. DPPM

Title: Bacall BP2 CRT 1.0 MTBF/FE Table

168hr DPPM

6091

985	Qty
6	Failure Qty
01/14/14	Date



Issue	Corrective Action	Fix Validation	Qty	Mode DPPM	FE %		Reduced DPPM		SN/TTF
					Demo'd	Potential	Demo'd	Potential	
Head Improvements with Stability 2 and test	Stability 2 and test enhancements	-	2	2030	.	40%	2030	1218	[W72001S8 - 83] [W73000V6 - 58]
Particle and Contamination Reduction plans for FOF lines (Prime Phase 10) [ISS8758]	CSI EE auto-self cleaning AUV rabbit clean BUD EE gripper particle reduction(Auto Dycem Cleaning) Gen2 Sleeve for GSS1 Gen2 BLMC Auto Cleaning Clamp Holder Washing Fixture Enclosure Cover plate for GSS Screw driver motor Design a J-Box and add vacuum to block and remove particles for DS2 Bracket with vacuum to remove particles for DS2 2x filtration washing system	-	1	1015	.	15%	1015	862.75	[S5100EY6 - 42]
SWOT fails due to PZT oxidation in BP2 [ISS8796]	PZT oxidation leading to SWOTs in BP2. Ongoing monitoring	-	1	1015	.	40%	1015	609	[W72001EL - 4]
Write - Aborted Write - Controlled	FA in Progress	-	1	1015	.	.	1015	1015	[S5100F83 - 7]
Write - BAD Write	In Retest	-	1	1015	.	.	1015	1015	[W73001MP - 7]

Total Qty. 6

DPPM 6090 4719.75

Bacall BP2 CRT 1.0 No Plastic DSP

Title: Bacall CRT 1.0 - No Plastic DSP MTBF

AFR(1st year Weibull)	1.485%	From all fails Weibull MLE
MTBF (1st year Weibull)	585692	
2Yr FR (2nd Year Weibull)	1.837%	
3Yr FR (3rd Year Weibull)	2.080%	
4Yr FR (4th Year Weibull)	2.271%	
5Yr FR (5th Year Weibull)	2.432%	

653	Qty
8	Failure Qty
8760	POH/Year
0.31	Weibull Beta
1067	Average Test Hours
01/08/14	Date



Issue	Corrective Action	Fix Validation	Qty	Mode AFR %	FE %		Reduced AFR		SN/TTF
					Demo'd	Potential	Demo'd	Potential	
Head - Degraded Reader	-	-	1	0.17%	.	.	0.17%	0.17%	[W72001S8 - 83]
Media Defect - NMD Other	-	-	1	0.17%	.	.	0.17%	0.17%	[W73001BA - 195]
Modulation - ABS Fly Height - Active Read Mod	-	-	1	0.17%	.	.	0.17%	0.17%	[W73001F3 - 303]
Off-Track SWOT (Single Wedge Off-Track)	-	-	1	0.17%	.	.	0.17%	0.17%	[W72001EL - 4]
Write - Aborted Write - Controlled	-	-	1	0.17%	.	.	0.17%	0.17%	[S5100F83 - 7]
Write - BAD Write	-	-	1	0.17%	.	.	0.17%	0.17%	[W73001MP - 7]
Write - Skip Write	-	-	1	0.17%	.	.	0.17%	0.17%	[S5100F06 - 234]
Write - Weak Write Single Sector	-	-	1	0.17%	.	.	0.17%	0.17%	[S5100EV6 - 42]

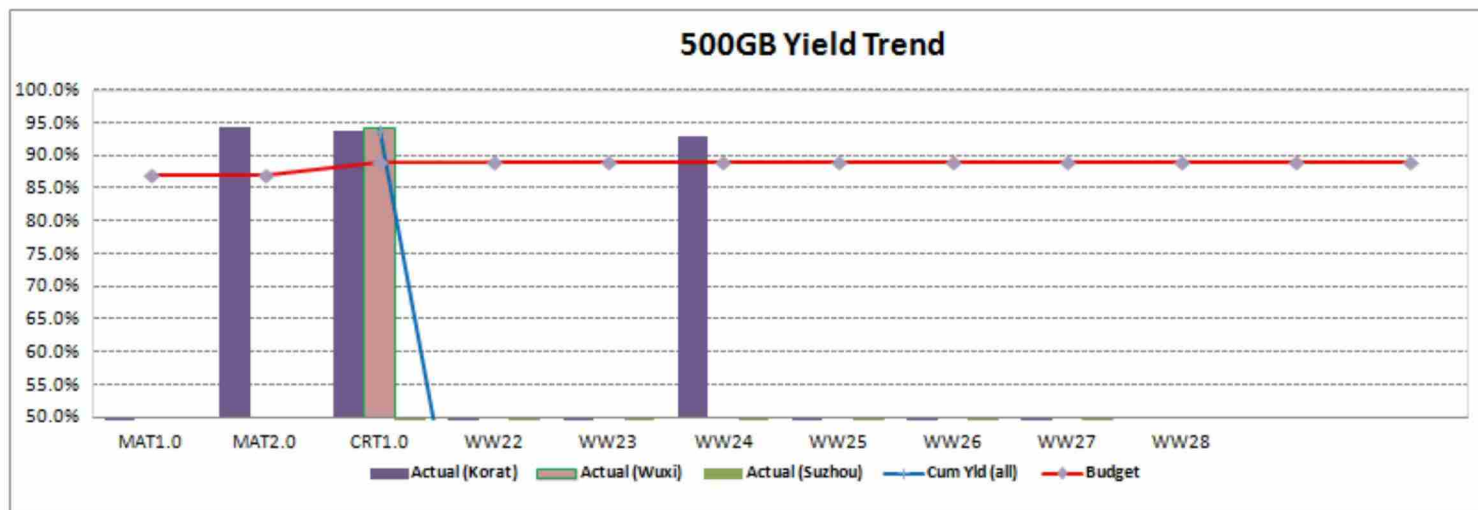
Total Qty. 8

AFR 1.48% 1.48%

MTBF 586K 586K

Grenada BP2 : 500GB Yield Trend

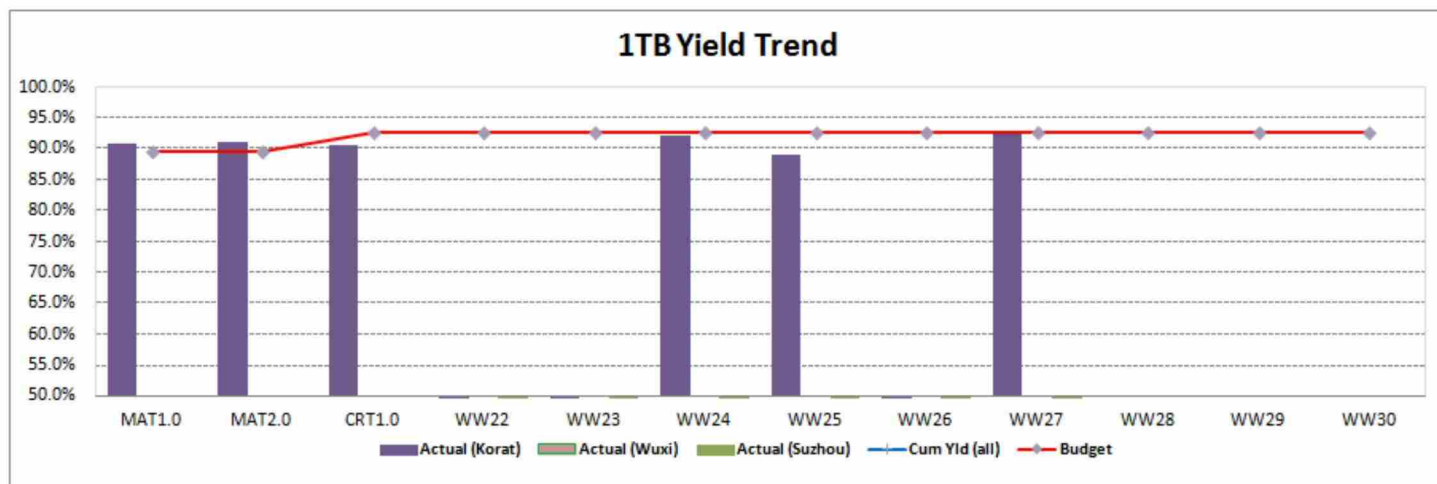
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94% yield.
achieved budget.

No gap to BP.

Grenada 500GB Prime yield	MAT1.0	MAT2.0	CRT1.0	WW22	WW23	WW24	WW25	WW26	WW27	WW28	WW29	WW30
Phase/PCO	N/A	GB2_03_1	GB2_04_1	GB2_04_2					GB2_04_3			
Actual (Korat)	N/A	94.4%	93.9%	LV	LV	93.1%	LV	LV	LV			
Volume	N/A	1001	328	LV	LV	4853	LV	LV	LV			
Actual (Wuxi)			94.2%	LV	LV	LV	LV	LV	LV			
Volume			263	LV	LV	LV	LV	LV	LV			
Actual (Suzhou)			NA	LV	LV	LV	LV	LV	LV			
Volume			NA	LV	LV	LV	LV	LV	LV			
Cum Yld (all)			94.1%	LV	LV	LV	LV	LV	LV			
Volume			591	LV	LV	LV	LV	LV	LV			
Budget	87.1%	87.1%	89.1%	89.1%	89.1%	89.1%	89.1%	89.1%	89.1%	89.1%	89.1%	89.1%



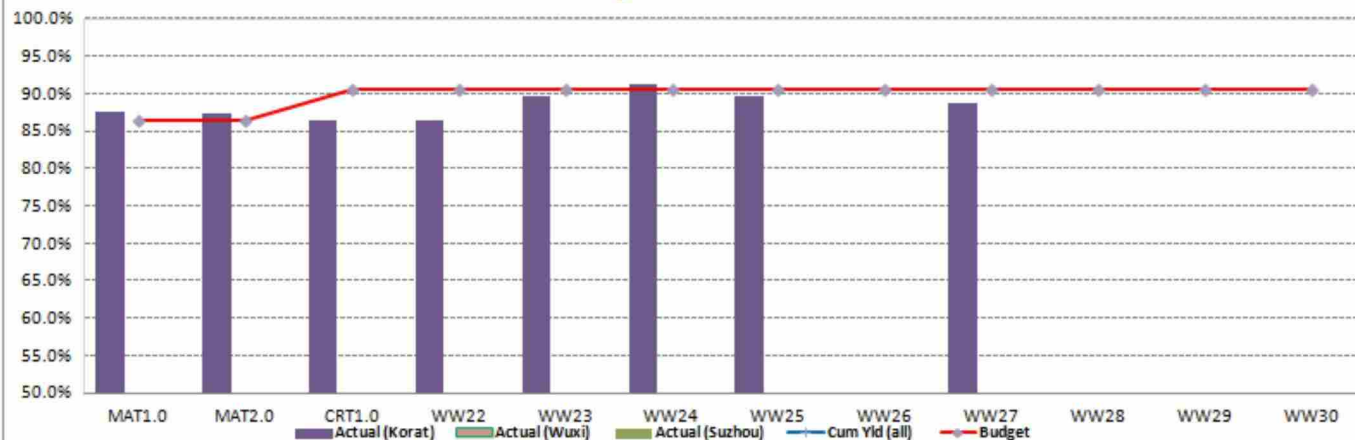
93% yield.
achieved budget.

0.6% gap to BP

Grenada 1TB Prime yield	MAT1.0	MAT2.0	CRT1.0	WW22	WW23	WW24	WW25	WW26	WW27	WW28	WW29	WW30
Phase/PCO	GB2_02_2	GB2_03_1	GB2_04_1	GB2_04_2					GB2_04_3			
Actual (Korat)	90.9%	91.2%	90.6%	LV	LV	92.3%	89.1%	LV	93.0%			
Volume	778	379	452	LV	LV	5144	992	LV	1286			
Actual (Wuxi)				LV	LV	LV	LV	LV	LV			
Volume				LV	LV	LV	LV	LV	LV			
Actual (Suzhou)				LV	LV	LV	LV	LV	LV			
Volume				LV	LV	LV	LV	LV	LV			
Cum Yld (all)				LV	LV	LV	LV	LV	LV			
Volume				LV	LV	LV	LV	LV	LV			
Budget	89.6%	89.6%	92.7%	92.7%	92.7%	92.7%	92.7%	92.7%	92.7%	92.7%	92.7%	92.7%

Yield Loss	Failure Causes	Status
1.30%	HEAD INSTABILITY_METRIC > 28 or 38	(a) GOTF spec refinements in PCO 5.0 to recover 30 to 40% (b) investigate by TIMO (90x were ship to RHO on W1428) to try with new Stability2.0 test suit,
1.20%	AFH related fails. Primary symptom are from ID roll off due to contam. Higher failure trend on PNG slider vs TK slider	Special builds with 4 legs, between MPT/NHK, TK/PNG slider/ Also add BP to be control to identify where the problem was from.
0.40%	Blister defect from wash process	TCL180 detergent to reduce this. 100% phase in by JAN
0.20%	Apple Bluenun scan failure	Allow downgrade to other OEM or Disty in PCO 5.0

2TB/4H Yield Trend

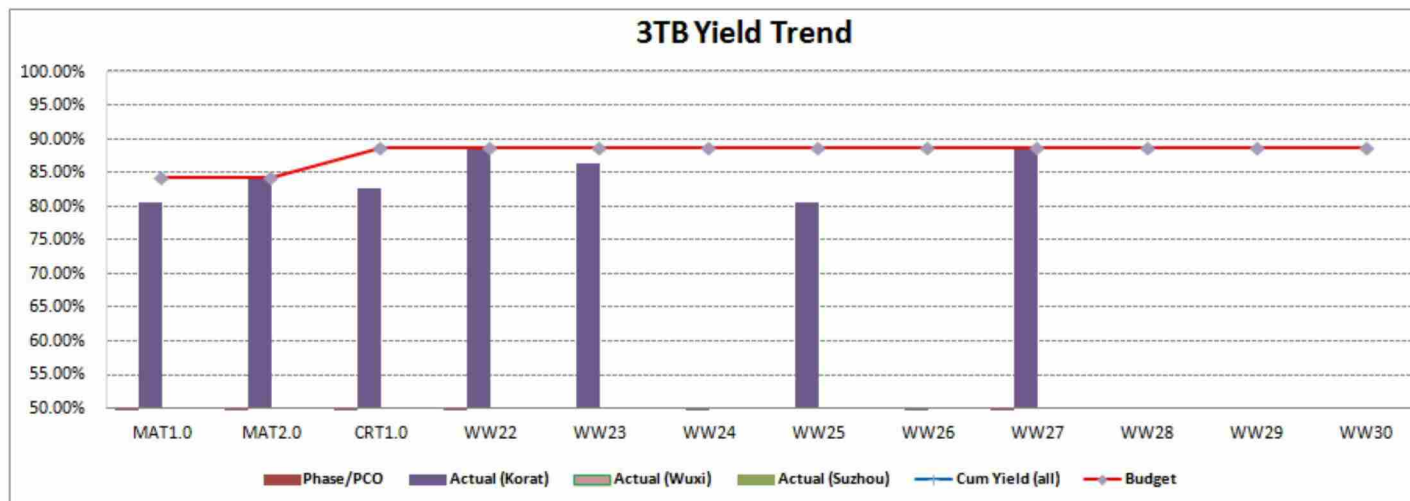


88.8% yield.
1.9% below budget.

3.7% gap to BP

Grenada 2TB/4H Prime yield	MAT1.0	MAT2.0	CRT1.0	WW22	WW23	WW24	WW25	WW26	WW27	WW28	WW29	WW30
Phase/PCO	GB2_02_2	GB2_03_1	GB2_04_1	GB2_04_2					GB2_04_3			
Actual (Korat)	87.6%	87.5%	86.5%	86.5%	89.8%	91.4%	89.8%	LV	88.8%			
Volume	766	405	727	1004	2979	1958	1454	LV	3986			
Actual (Wuxi)												
Volume												
Actual (Suzhou)												
Volume												
Cum Yld (all)												
Volume												
Budget	86.6%	86.6%	90.7%	90.7%	90.7%	90.7%	90.7%	90.7%	90.7%	90.7%	90.7%	90.7%

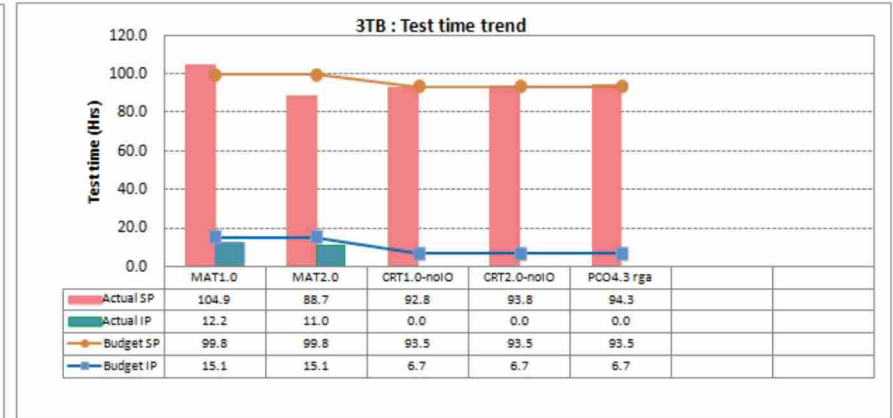
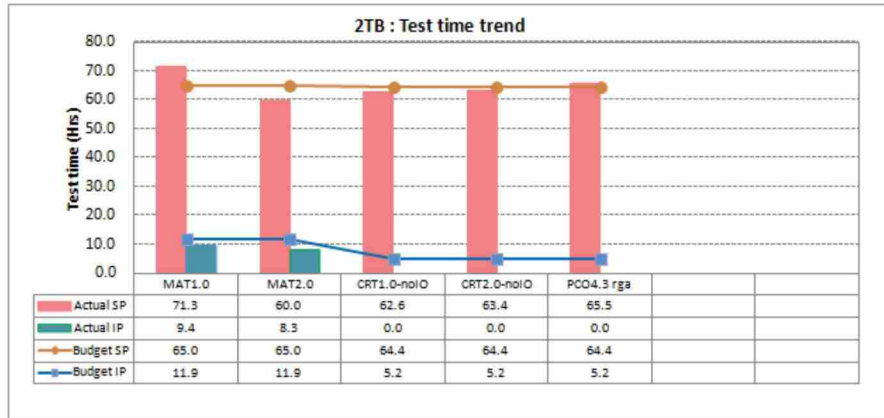
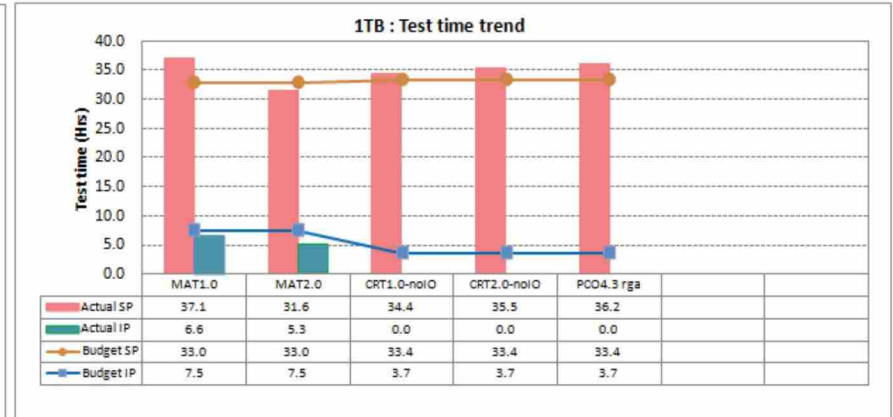
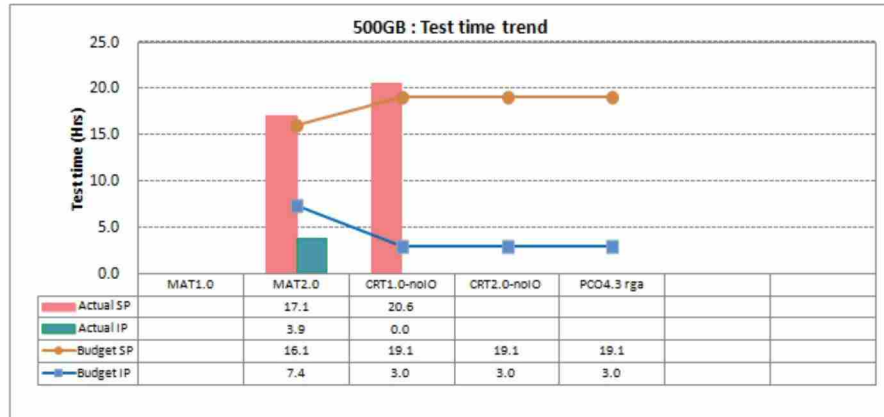
Yield Loss	Failure Causes	Status
1.80%	HEAD INSTABILITY_METRIC > 28 or 38	(a) GOTF spec refinements in PCO 5.0 to recover 30 to 40% (b) investigate by TIMO (90x were ship to RHO on W1428) to try with new Stability2.0 test suit,
1.50%	AFH related fails. Primary symptom are from ID roll off due to contam. Higher failure trend on PNG slider vs TK slider	Special builds with 4 legs, between MPT/NHK, TK/PNG slider/ Also add BP to be control to identify where the problem was from.
0.90%	EC10414 PRE2 : found damage on Spacer issue	Working with SQE to get the closure



Grenada 3TB Prime yield	MAT1.0	MAT2.0	CRT1.0	WW22	WW23	WW24	WW25	WW26	WW27	WW28	WW29	WW30
Phase/PCO	GB2_02_2	GB2_03_1	GB2_04_1	GB2_04_2					GB2_04_3			
Actual (Korat)	80.7%	84.2%	82.8%	88.5%	86.5%	LV	80.7%	LV	88.7%			
WTF ratio (Korat)	0.3%	0.0%	0.0%	0.1%	0.1%	LV	0.5%	LV	0.0%			
Volume	910	236	642	913	1989	LV	1518	LV	1986			
Actual (Wuxi)												
WTF ratio (Wuxi)												
Volume												
Actual (Suzhou)												
WTF ratio (Suzhou)												
Volume												
Cum Yield (all)												
Volume												
Budget	84.4%	84.4%	88.8%	88.8%	88.8%	88.8%	88.8%	88.8%	88.8%	88.8%	88.8%	88.8%

Yield Loss	Failure Causes	Status
2.00%	HEAD INSTABILITY_METRIC > 28 or 38	(a) GOTF spec refinements in PCO 5.0 to recover 30 to 40% (b) investigate by TIMO (90x were ship to RHO on W1428) to try with new Stability2.0 test suit,

Test Time By Configs :





Grenada BP2 – CTU & SAD Manufacturing, Product Development & Systems Engineering

January 10, 2014

Kevin Stenvall

Tracy French, Walid Seif, Pushpak Jha



Grenada BP2 Core Team is presenting the following package for your approval for CTU & SAD release of the full family of Grenada BP2 drives, and CTU release of the full family of Bacall BP2 drives. We present this request with only one material restrictions, where Bacall BP2 will use TDK only until RHO + uPemto topple drop CA is in place.

If you have any questions or concerns please contact Pat Dewey, Kevin Stenvall, Andrew Wong, Robert Kolanda, Gary Kelsic, members of the Grenada Core Team.

Go Grenada BP2!



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Grenada BP2 Continued Support

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Lombard Clamp, Radial Slope Change, Bacall BP2 topple Drop Issue with RHO

- **Bacall BP2 restriction to use only TDK until Corrective Action in place.**
- **Radial Slope Fix incorporated into qualification builds on 1/7 and 1/10. ECD WW32 (risk) WW35 (full)**

Grenada BP2 1h – Change to Actuator Arm to support Balance Weight Diameter

- **Engineering builds and qualification RGA scheduled for February. ECD WW34 (pull in?)**

Plastic DSP Cleanliness Improvement

- **Optimize the factory wash recipe to include Plastic DSPs. ECD WW34**
- **Develop/Qualify vendor process to seal DSP gate area for particle mitigation. ECD WW39**

Internal Process, Tier 2 No I/O, and 3 Tier

- **Support will be in PCO 5.x ECD WW31**

BOM Documentation

- **GOTF and Depop Waterfall Structure ECD WW29**
- **3 Tier Structure in March/April. WW39**



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Seagate 

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Grenada BP2 Readiness Check List

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Product Name: Grenada BP2 & Bacall BP2		Date: 1/9/2014
Checklist Criteria	Status/Exceptions	Met?
Inputs		
Changes to Test Process deliverables reviewed and documented	All	<input checked="" type="checkbox"/> YE <input type="checkbox"/> NC
Requirements		
On going LRP Test Time and Yield Projections	Advanced Process Development / Launch Lead	<input checked="" type="checkbox"/> YE <input type="checkbox"/> NC
Internal Test Process features with Integration Plans	Test Process Achitecture	<input checked="" type="checkbox"/> YE <input type="checkbox"/> NC
External Test Process features with Integration Plans	Test Process Achitecture	<input checked="" type="checkbox"/> YE <input type="checkbox"/> NC
Include FW Team in Test Process Functional Review (LCO)	All	<input checked="" type="checkbox"/> YE <input type="checkbox"/> NC
Feature Integration - on going vs identified	Drive Integration	<input checked="" type="checkbox"/> YE <input type="checkbox"/> NC
Core Team meeting attendance for Test Process and Integration Leads	Drive Integration	<input checked="" type="checkbox"/> YE <input type="checkbox"/> NC
SBS and CTU Process Readiness (GOTF and Customer Unique) (LCO)	Drive Integration	<input checked="" type="checkbox"/> YE <input type="checkbox"/> NC
Factory PCO and FA Support	Drive Integration	<input checked="" type="checkbox"/> YE <input type="checkbox"/> NC
On going Yields and YIPs	Drive Integration	<input checked="" type="checkbox"/> YE <input type="checkbox"/> NC
On Going Test Times and TTR Plans	Drive Integration	<input checked="" type="checkbox"/> YE <input type="checkbox"/> NC
Final Customer Feature Integration Complete	Drive Integration	<input checked="" type="checkbox"/> YE <input type="checkbox"/> NC
Depop OTF and Reconfig Processes available	Drive Integration	<input checked="" type="checkbox"/> YE <input type="checkbox"/> NC
Include Customer Tier Performance in Yield Reporting and YIPs	Drive Integration	<input checked="" type="checkbox"/> YE <input type="checkbox"/> NC
Parametric data analysis reviewed	Drive Integration	<input checked="" type="checkbox"/> YE <input type="checkbox"/> NC
Planning / Scheduling		
SPC ID's documented	Test Process Achitecture	<input checked="" type="checkbox"/> YE <input type="checkbox"/> NC
Maturity		
Test Specification Set	Drive Integration	<input checked="" type="checkbox"/> YE <input type="checkbox"/> NC
Test Repeatability study completed, including Gage RR	Drive Integration	<input checked="" type="checkbox"/> YE <input type="checkbox"/> NC
Test Process ready to achieve CTU / SAD Declare		
		<input checked="" type="checkbox"/> YE <input type="checkbox"/> NC

SED SP, SED/SD&D Reconfig
HP, Echostar, Panasonic/Son

SED & SD&D CCAs

Items with arrows have Plan in place for implementation.

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Back up





Manufacturing Plan Summary


- **FOF process**
 - Heavily leveraged from Grenada BP processes, added balance capability to all multi disc configurations.
 - Balance capability added for Grenada BP2 Apple business segment, and Bacall BP2 NSA business segment, but factory can chose to sort on all other customers/business segments for this program.
 - Making changes to CSI, and adding BLVI station to multi disc lines.
 - Leverage Grenada BP Rework Process – No Qualification required with exception to recycle Plastice DSPs.
- **Manufacturing**
 - Korat is the Grenada BP2 Primary Launch, with both Wuxi & SuZhou as secondary sites.
 - Wuxi Bacall BP2 Launch, will be fast follow of Grenada BP2, and Suzhou as secondary site.
 - Training – N/A, highly leveraged, can support with factory ramp teams if required
- **Test**
 - Gemini Based Front & Back-End Test, and 2D and 3D may require use of Headster/ST240
 - Gemini Targeting No I/O – Low Temp Serial Port Process
 - 3 Tier Process will be implemented before PTA



Manufacturing Configurations

- **Native Capacity 3D/3TB, 3D/2TB/4H, 2D/2TB/4H, 1D/1TB and 1D/500gB/1H**
 - 1H will consist of both Top and Bottom Depop head configurations.
 - 1H, and 3D/4H, configurations will be for SSW Media consumption.
- **Waterfall Capacities are 500gB from 1TB, and 2TB from 3TB.**
 - **Manufacturing concerned with rework and scrap since there is no 2D waterfall path.**
 - **BD Restriction to have waterfall to Disty and SBS only, due to performance within $\pm 5\%$ constraint.**

Product	SN Prefix Apple - Bal	SN Prefix	GB	Priority	Waterfall Path	Documented	BD Requested	Remark	Head Usage		Media Usage		Note
						STModel#	ProdModel#		Native	2nd Sort	DS	SS	
Grenada BP 2	7P	50	3000	1		ST3000DM001	1ER166	Native	6		3		
			2000	1		ST2000DM001	1ER164	WTF	6 to 5 or 4		3		Depop/Rezone to Disty/SBS
	7N	56	2000	2		ST2000DM001	1ER164	SSW+Native	4		1	2	DBL DP SSW - Grenada BP2
		4Z	2000	3		ST2000DM001	1ER164	Native	4		2		
		4Y	1000	1		ST1000DM003	1ER162	Native	2		1		
			500	1		ST500DM002	1ER14C	WTF	1		1		Depop/Rezone to Disty/SBS
		4X	500	1		ST500DM002	1ER14C	Native	1		1	1	TOP Depop SSW
		53	500	1		ST500DM002	1ER14C	Native	1		1	1	BTM Depop SSW

Product	SN Prefix NAS - Bal	SN Prefix	GB	Priority	Waterfall Path	Documented	BD Requested	Remark	Head Usage		Media Usage		Note
						STModel#	ProdModel#		Native	2nd Sort	DS	SS	
Bacall BP2	73	6A	3000	1		ST1000VM001	1ET166	Native	6		3		
			2000	1		ST1000VM003	1ET164	WTF	6 to 5 or 4		3		Depop/Rezone to Disty
	72	51	2000	2		ST1000VM003	1ET164	Native	4		2		
	NA	52	1000	1		ST1000VM002	1ET162	Native	2		1		



Grenada Bacall BP2 LRP 52-05

Grenada: -			Prime yield				Insertion yield				Total Test Time(w MQM adder)				Gemin Packcap				Insertion throughput yield			
Product	HD	CAP	Q414	Q115	Q215	Q315	Q414	Q115	Q215	Q315	Q414	Q115	Q215	Q315	Q414	Q115	Q215	Q315	Q414	Q115	Q215	Q315
GrenadaBP	2	1000	93.5%	93.5%	93.5%	93.5%	93.0%	93.0%	93.0%	93.0%	39.1	39.1	39.1	39.1	1,256	1,256	1,256	1,256	97.5%	97.5%	97.5%	97.5%
GrenadaBP	4	2000	91.5%	91.5%	91.5%	91.5%	90.0%	90.0%	90.0%	90.0%	72.9	72.9	72.9	72.9	655	655	655	655	91.6%	91.6%	91.6%	91.6%
GrenadaBP	6	3000	90.0%	90.0%	90.0%	90.0%	89.0%	89.0%	89.0%	89.0%	105.0	105.0	105.0	105.0	450	450	450	450	97.0%	97.0%	97.0%	97.0%
GrenadaBP2	2	1000	93.6%	93.6%	93.6%	93.6%	93.0%	93.0%	93.0%	93.0%	37.4	37.4	37.4	37.4	1,315	1,315	1,315	1,314	97.5%	97.5%	97.5%	97.5%
GrenadaBP2	4	2000	92.2%	92.2%	92.2%	92.2%	90.5%	90.5%	90.5%	90.5%	69.1	69.1	69.1	69.1	695	695	695	695	91.6%	91.6%	91.6%	91.6%
GrenadaBP2	6	3000	90.5%	90.5%	90.5%	90.5%	89.3%	89.3%	89.3%	89.3%	103.9	103.9	103.9	103.9	457	457	457	457	97.0%	97.0%	97.0%	97.0%
Delta																						
BP2 vs BP	2	1000	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	-1.7	-1.7	-1.7	-1.7	59	59	59	58	0.0%	0.0%	0.0%	0.0%
BP2 vs BP	4	2000	0.7%	0.7%	0.7%	0.7%	0.5%	0.5%	0.5%	0.5%	-3.8	-3.8	-3.8	-3.8	40	40	40	40	0.0%	0.0%	0.0%	0.0%
BP2 vs BP	6	3000	0.5%	0.5%	0.5%	0.5%	0.3%	0.3%	0.3%	0.3%	-1.1	-1.1	-1.1	-1.1	6	6	6	6	0.0%	0.0%	0.0%	0.0%

Bacall: -			Prime yield				Insertion yield				Total Test Time(w MQM adder)				Gemin Packcap				Insertion throughput yield			
Product	HD	CAP	Q414	Q115	Q215	Q315	Q414	Q115	Q215	Q315	Q414	Q115	Q215	Q315	Q414	Q115	Q215	Q315	Q414	Q115	Q215	Q315
BacallBP	2	1000	93.5%	93.5%	93.5%	93.5%	92.5%	92.5%	92.5%	92.5%	46.9	46.9	46.9	46.9	1,039	1,039	1,039	1,039	93.5%	93.5%	93.5%	93.5%
BacallBP	4	2000	91.0%	91.0%	91.0%	91.0%	89.5%	89.5%	89.5%	89.5%	83.5	83.5	83.5	83.5	570	570	570	570	92.5%	92.5%	92.5%	92.5%
BacallBP2	2	1000	93.0%	93.2%	93.2%	93.2%	92.5%	92.5%	92.5%	92.5%	47.3	45.3	45.3	45.3	1,031	1,077	1,077	1,077	93.5%	93.5%	93.5%	93.5%
BacallBP2	4	2000	91.5%	91.7%	91.7%	91.7%	89.5%	89.5%	89.5%	89.5%	84.5	83.5	82.5	82.5	563	570	576	576	92.5%	92.5%	92.5%	92.5%
BacallBP2	6	3000	90.1%	90.1%	90.1%	90.1%	85.7%	86.1%	86.1%	86.1%	121.7	120.7	119.7	119.7	377	381	384	384	93.0%	93.0%	93.0%	93.0%
Delta																						
BP2 vs BP	2	1000	-0.5%	-0.3%	-0.3%	-0.3%	0.0%	0.0%	0.0%	0.0%	0.4	-1.6	-1.6	-1.6	-8	38	38	38	0.0%	0.0%	0.0%	0.0%
BP2 vs BP	4	2000	0.5%	0.7%	0.7%	0.7%	0.0%	0.0%	0.0%	0.0%	1.0	0.0	-1.0	-1.0	-7	0	7	7	0.0%	0.0%	0.0%	0.0%
BP2 vs BP	6	3000																				

Note: BacallBP 2TB insertion yield Q414 projection 89.5% vs 90%(Q214 actual)

LRP 52 – 06

BBP2, Yield +.5% & Test Time -.5hr

ET Yield	Bacall/Grenada				Bacall/GrenadaBP2				Delta (BP2 - BP)			
	Q414	Q115	Q215	Q315	Q414	Q115	Q215	Q315	Q414	Q115	Q215	Q315
Low Sort	3.5%	3.5%	3.5%	3.5%	0.0%	0.0%	0.0%	0.0%	-3.5%	-3.5%	-3.5%	-3.5%
Native	86.3%	87.5%	87.8%	88.5%	91.1%	91.5%	91.9%	92.5%	4.8%	4.0%	4.0%	4.0%
Cum	89.8%	91.0%	91.3%	92.0%	91.1%	91.5%	91.9%	92.5%	1.3%	0.5%	0.5%	0.5%
Slider Yield	83.0%	83.0%	83.2%	84.0%	82.0%	82.2%	83.0%	83.0%	-1.0%	-0.6%	-0.2%	-1.0%

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Grenada/Bacall BP2, LCO52-05 Yields

Summary:

- Grenada BP2 – Updated to match expected YIP yield gains.
- Bacall BP2 – Updated to match expected YIP yield gains.

Design. Cen	SAD	Detailed Product Name	Hea	Capac	Composite Prime Yield					
					Prime Yield (SAD +1 Mo)	Prime Yield (SAD +4 Mos)	Prime Yield (SAD +7 Mos)	Prime Yield (SAD +10 Mos)	Prime Yield (SAD +13 Mos)	Prime Yield (SAD +16 Mos)
LCO	22-Jan-2014	BacallBP2	6	3000	88.8%	90.1%	90.1%	90.1%	90.1%	90.1%
LCO	22-Jan-2014	BacallBP2	4	2000	90.7%	91.5%	91.7%	91.7%	91.7%	91.7%
LCO	22-Jan-2014	BacallBP2	2	1000	92.7%	93.0%	93.2%	93.2%	93.2%	93.2%
LCO	22-Jan-2014	GrenadaBP2	6	3000	89.5%	90.5%	90.5%	90.5%	90.5%	90.5%
LCO	22-Jan-2014	GrenadaBP2	4	2000	91.2%	92.2%	92.2%	92.2%	92.2%	92.2%
LCO	22-Jan-2014	GrenadaBP2	2	1000	93.1%	93.6%	93.6%	93.6%	93.6%	93.6%
LCO	22-Jan-2014	GrenadaBP2	1	500	90.2%	91.2%	91.2%	91.2%	91.2%	91.2%
LCO	22-Jan-2014	BacallBP2-Throughput	6	3000	95.0%	97.0%	97.0%	97.0%	97.0%	97.0%
LCO	22-Jan-2014	GrenadaBP2-Throughput	6	3000	97.3%	97.7%	98.0%	98.0%	98.0%	98.0%
LCO	22-Jan-2014	GrenadaBP2-Throughput	4	2000	92.7%	93.5%	93.7%	93.7%	93.7%	93.7%
LCO	22-Jan-2014	GrenadaBP2-Throughput	2	1000	95.1%	97.0%	98.0%	98.0%	98.0%	98.0%
LCO	22-Jan-2014	GrenadaBP2-Throughput	1	500	91.1%	92.1%	92.2%	92.2%	92.2%	92.2%

LRP 52 – 06

BBP2, Yields increased .5% on 1TB

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Grenada/Bacall BP2, LCO 52-05 Test Times

Summary:

- Grenada BP2, changed SP & I/O times to reflect "No I/O" @ 40% of volume.
- Bacall BP2, reduced times to reflect current PCO test time improvements.

						Composite Test Time				
Design Cen	SAD	Detailed Product Na	Head	Capac	Test Time (SAD +1 Mo)	Test Time (SAD +4 Mos)	Test Time (SAD +7 Mos)	Test Time (SAD +10 Mos)	Test Time (SAD +13 Mos)	Test Time (SAD +16 Mos)
LCO	22-Jan-2014	BacallBP2	6	3000	115.7	115.7	115.7	115.7	115.7	115.7
LCO	22-Jan-2014	BacallBP2	4	2000	79.5	79.5	79.5	79.5	79.5	79.5
LCO	22-Jan-2014	BacallBP2	2	1000	43.3	43.3	43.3	43.3	43.3	43.3
LCO	22-Jan-2014	GrenadaBP2	6	3000	100.2	100.2	100.2	100.2	100.2	100.2
LCO	22-Jan-2014	GrenadaBP2	4	2000	67.8	67.8	67.8	67.8	67.8	67.8
LCO	22-Jan-2014	GrenadaBP2	2	1000	37.1	36.9	36.7	36.5	36.3	36.3
LCO	22-Jan-2014	GrenadaBP2	1	500	22.1	22.0	21.9	21.8	21.7	21.7

LRP 52 – 06

BBP2, Test Times decreased .5 hours on 1TB & 2TB..



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Projected Configuration Plan

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Marketing Name		Formatted Capacity	Config	Product Cache	Apple	HP	Lenovo	Samsung	Fujitsu	Dell	STD OEM	Disty	Retail	Total
Tab					040	020	540	N/A	500	500	500	300	570	
GrenadaBP2	1D	1000	2.0A	64	2	1	1	0	0	0	1	1	1	7
	2D	2000	2.0A	64	0	0	0	0	0	0	0	0	1	1
		2000	2.5A	64	2	1	1	0	0	0	1	1	0	6
	3D	3000	2.0A	64		0	0	0	0	0	0	0	1	1
		3000	2.5A	64	2	1	1	0	0	0	1	1	0	6
Grand Total					6	3	3	0	0	0	3	3	3	21

- Grenada BP had 25 Configs not including NLL,SMR, SV, and S

Grenada BP to BP1.5 to BP2

3/12/13

CC Transition Matrix

Customer	Current BP CC 1CH16x-	Migrate to BP1.5 CC 1CH16x-	Current BP CTU Tab	Migrate to BP1.5 CTU Tab	Expected BP2 CTU Tab 1ER16x-	Expected BP2 Production Tab 1ER16x-
SBS / Retail (2.0A)	572	575 *	904	911 *	910	570
Disty (2.5A)	302	305	903	910	900	300
Dell / Std OEM(2.5A)	501	510	903	910	900	500
Std OEM (2.0A)	505	515 *	904	911 *	910	510
HP	020	020	021	021	020	020
Lenovo	543	544	543	544	540	540
Samsung 2TB	230	231	903	910	NA	NA
Apple	042	NA	701	NA	700	040



GrenadaBP2 Restrictions & Plan

Grenada	Volume	MATERIAL								BUILD			CONFIG	LABEL		MFG Site													
Customers	%	PCBA		H SA Head	Suspension	PreAmp	Media	MBA	Cover	Other	Bal Control	GOTF	CustTest	F3	Drive	Case	SUZ	Wuxi	TTk										
		Chip	Type																										
Apple	3%										Black LABEL Non SLTOS W/F	1D:FBP2<12.6 2D:FBP2<15.7 3D:FBP2<15.7	OEM1A	Apple BlueNum Full pack 0s	AP15	2				1									
HP	5%										1D:FBP2<17.6 2D:FBP2<28 3D:FBP2<30.8			Dell PPID	HP32	1				1									
Lenovo	4%										1D:FBP2<17.6 2D:FBP2<28 3D:FBP2<30.8			Dell PPID	CC56	1				1									
STD OEMs	30%										1D:FBP2<17.6 2D:FBP2<28 3D:FBP2<30.8			Dell PPID															
Disty	60%										1D:FBP2<17.6 2D:FBP2<28 3D:FBP2<30.8			Dell PPID															
Retail	3%										1D:FBP2<17.6 2D:FBP2<28 3D:FBP2<30.8			Dell PPID															

No Restriction
Customer Requirement
Seagate Restriction

Improvements from GrenadaBP

- Remove all Suspension and Media restrictions from BP
- Remove all GOTF restrictions except for Apple



Complexity Matrix – Bacall BP2

Bacall BP2	Volume	MATERIAL										BUILD	Test		CONFIG	LABEL		MFG Site		
Blockpoint	%	PCBA		H SA Head	H SA Sort	Suspension	PreAmp	Media	MBA	Cover	Other	Bal Control	GOTF	CustTest	F3	Drive	Case	SUZ	Wuxi	TTk
		Chip	Type																	
Sony	1.0%											FBP2<12.4 1D FBP2<20.1 2D		Full pack Os, Sony MQM, 1.5G lockdown	NYC1		Unique			
Panasonic	1.0%											FBP2<12.4		1.5G lockdown,AV Scan	MAC1		Unique			
EchoStar	27.0%											FBP2<12.4 1D FBP2<20.1 2D		Full pack Os , POIS, 3D ES Security, LONG DST	ESC1					
THOMSON	1.0%											FBP2<12.4		3G lockdown, POIS test						
STD OEM	51.0%											FBP2<12.4 1D FBP2<20.1 2D								
Std Disty	7.0%																			

No Restriction
Customer Restriction
Seagate Restriction
Restriction with action

Marketing Name	Formatted Capacity	Product Cache	Sony	Panasonic	Echostar	Thompson	STD OEM 6G	STD OEM 3G	SV	NAS	Disty	Total
BacallBP2	1000	64	1	1	1	1	1	1	1	0	1	8
	2000	64	1	1	1	1	1	1	1	1	1	9
Grand Total			2	2	2	2	2	2	2	1	2	17

- Bacall BP CE to BP2 CE is (16 Configs BP to 14 Configs BP2)
- Addition of SV and NAS totals 17 for BP2



Grenada BP2 / Bacall BP2 PCO 5.0 (Next PCO)

Deliver to CT

12/11/2013

code lockdown

1/16/2014

Factory release

1/30/2014

Purpose: TBD

Yield
Improve
ment

TTR

MTBF

DPPM

New
FeatureGeneral
GoodnessCM load
RedcutionRequest
dateFactory
checkin

CL

New SIC code REL.SATA.643970:

643870

Add Bacall B2 tab 911 to CE1 BS

650589

Add tab 702 to CTUA for iMac-AppleCare CTU

1/9/2014

Revert CL631789 to remove T240 GAIN_DELTA_LIM parameter, effectively set it to default of 200 instead of 20

X

1/7/2014

Enable downgrade for blue nun failure

X

1/7/2014

Make 'signed' SF3

1/7/2014

Fix FAIL_PROC issue. Move Fail Proc code block to Display V4 (Alt list), and critical event log information towards the end of the method

1/7/2014

650920

T315 DISTI only fail criteria request that I had previously sent to be modified as follows:
 If (315 instability metric >38), then fail only if any one of the following five conditions is also true:
 condition 1: max(T250RAW_ERROR_RATE)@BER1 > -2.2
 condition 2: stdev(T250RAW_ERROR_RATE)@BER1/mean(T250 RAW_ERROR_RATE)@BER1 > 0.1
 condition 3: abs[mean(T250RAW_ERROR_RATE)@BER1 - mean(T250 RAW_ERROR_RATE)@READ
 SCRN] > 0.3
 condition 4: (p297_hd_instby_BIE_SUM FULL_SIGMA)@FNC2>900
 condition 5: (p297_hd_instby_BIE_SUM FULL_SIGMA)@CAL2>900

X

12/10/2013

3-tier system [Andre] by mid January

12/20/2013

Combine SD&D and SED PF3 tragets into one

12/20/2013

Fix SED to SDnD reConfig

X

12/12/2013

SPT_ONLY - tier 2 support

10/14/2013

Add CUST_CFG to SPT_ONLY process, needed to support Tier 2

10/18/2013

Depop OTF FNC2 11049 [Dave K]

X

7/9/2013

CM Load improvement from Makara

10/21/2013

Support STS process

11/7/2013

T50 failure with no retry in different zone

11/20/2013

T285 (Locate Ramp) algorithm improvement [Bill Ray] Fix 10427 EC

X

11/25/2013

Sync up to BP PCO 9.7E3

11/25/2013

Reset SATA speed on reconfig (implement the serial port method instead of the interface command) Requires
 F3 support. Ensure HP works.
 PDD-0217062: BIST reset [[Luxor.*]]

3/7/2013

552901

Validate all remaining tabs (HP, E*)

10/14/2013

Channel Opti - restrict Precomp values in RAP for bad/weak write improvements [Vance]

10/24/2013

Conditional Testing for CCT on drives with signs of head instabilities. [Jon]

12/18/2013

GOTF screen for SMART log fails

12/18/2013

Propose a spec of >4500 verified errors for any head/zone in P109_SUM_HD_ZN. Pending data analysis

12/16/2013

set a new GOTF spec for the Rhtr in AFH3, Test Type=Burnish on the Burnish_Check parameter to +14A [Abhi
 B. / Terry H.] Pending data analysis

1/6/2014

HIGHLY CONFIDENTIAL

FED_SEAG0057348

Grenada BP2 / Bacall BP2 PCO 4.3 (Last PCO)

Deliver to CT

11/19/2013

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Purpose: Masspro yield improvements

	Yield Improvement	TTR	MTBF	DPPM	New Feature	General Goodness	CM load Reduction	Request date	Factory checkin	CL
Validate Echostar					X			10/14/2013		644694
Add SBS tab -569					X			12/17/2013		644615 T 644626 B
Fix T135 EC42187 FNC2, improve retries [Dick Martin]	X							10/21/2013		635875 T 638975 T 639304 T 639395 B
CL619033 "PFR-0234950: Add feature LODT control by send attribute								11/20/2013	X	614153 T 636004 B
Enable switch FE_0234653_497324_P_CONTROL_ATTR_LODT_FEATURE										
Re-PRE2 'SETUP_PROC' after recovery PWL for protect drive depop mapping wrong Physical Head					X			11/19/2013	X	635250 T 636010 B
Re-PRE2 'SETUP_PROC' after recovery PWL for protect drive depop mapping wrong Physical Head					X			11/27/2013		637642
Enable P399 ASYM SUMMARY in EDW					X	X				644038 T 644049 B 643522 B
Display V4 (Alt list) information in 'FAIL_PROC_SPT' state for ADG support	X							12/12/2013		644639 T 644665 B
Change USAE OTFRegressionOrder from 0x0401 to 0x0402 to make SAE Consigned heads use a 2nd order fit instead of 1st order fit after 4 points are collected.					X			12/17/2013		644633 644684 644686
T297 changes for TTR and more effective identification of bi-modal heads, integrate CL644343		X						12/17/2013		643482 T 643499 B
FNC2 T297 - (a) Add parameter PERCENT_LIMIT and set it to 0. (b) Set bit 1 of CWORD1			X					12/13/2013		620025 BP B 643236 B 644595 B
Add retry T185 When drive fail EC14670, then retest T185 again with optimize setting T185 on GrenadaBP as detail below. 'LO_RAMP_CONT_MAXCYL' from (0,250) to (0,12789) 'START_CYL' from (0,11800) to (0,13800) 'TK0_LIMIT' from 22980 to 25280	X							12/12/2013		642749
Temporarily moving from T285 to T185.	X							12/9/2013		641737 T 642356 B 640804 T 640806 B
Integrate CL641737 PFR-0244109: ZAP. T175/T275. Enable ZAP saturation check.			X	X		X		12/11/2013		640682 T 640758 B 639543 T 639545 B
T221 - DAC TO HEAT PWR FACTOR = 67 for TI and 71 for LSI	x							12/5/2013		562041 639410 639428
Move RUN T297 state to before RUN T315 SUM state in FNC2						X		12/6/2013		639349 T 639411 B 622670 T 638896 B 637717 T 637722 B
Add T335 retry to recover EC42188 for POST AFH run	X							12/4/2013		637210 637216
SED code support. Fix 100% FIN2 14616-FDE Start Session Failed : T577 FDE Personalization Error. Only IO so far.					X			7/10/2013		635401 635402 634884 634886 634514 634521
Add PF3 retry to T62 to recover EC10560 (from BP)	X							12/3/2013		
Merge CL622670 - Updated T248 to add GetMargin retries, moving to nearby tracks. Fix EC10522 at FIN2	X							11/29/2013		
Remove GOTF Spec P2109 DFS_BER_STATS->HARD_BER >= 4.3 and SSER < 2.8 Bit 18	X							11/22/2013		
Pick and choose servo for SD&D only (F3/PF3)					X			5/17/2013		
ALL.LOD file combining F3 and servo code [Pushpak]										
T320 - make it fail safe for OTC data collection in FNC2 [Jon]	X							11/26/2013		
Enable new GOTF spec to fail drives in T-25 for LOAD PEAK CUR STDEV > 10 EC 10279			X	X				11/20/2013		
Remove GOTF on P275_ZAP_AUDIT_STATS2 for MAX_3SIGNRO for Apple						X		11/20/2013		
Fix typo in GOTF for table P275_ZAP_AUDIT_STATS2 for Apple			X			X		11/19/2013		

GOTFSPEC

Criteria_Table	Criteria_Column	Criteria_Op	Criteria_Val	Num_Vio	Business_Group	Grade_P	Fail_Code	Filter1_Item	Filter1_Op
P2109_DFS_ERROR_STATS_BY_HEAD	TOTAL_UNVFDYD_ERR_CNT_BY_HEAD	LESS THAN	370000		OCE1,CTUA/B,OEM1A/B/F,STD	0			
P250_AVERAGE_BER_DELTA_BY_HEAD	AVG_RAW_ERR_RATE_T250_BER_DELTA	LESS THAN OR EQUAL TO	0.5		OCTUA/B,OEM1A/B/F	1		AVG_RAW_ERR_RATE_FIN2_IN_RANGE	EQUAL TO
P134_TA_DETCR_DETAIL_SUM_HD2_COMBO	MAX_AMP_WIDTH	LESS THAN	12000		OCE1,CTUA/B,OEM1A/B/F,STD	2		AMP7_CNT	GREATER THAN OR EQUAL TO
P2109_DFS_BER_STATS	SER	GREATER THAN OR EQUAL TO	3.5		OCE1	3			
P2109_DFS_BER_STATS	SER	GREATER THAN OR EQUAL TO	4.8		OCTUA/B,OEM1A/B/F,STD	3			
P051_ERASURE_BER	BITS_IN_ERROR_BER	GREATER THAN	2		OCTUA/B	4		NUM_WRT	EQUAL TO
P051_ERASURE_BER	OTF_BER	GREATER THAN	7		OCTUA/B	4		NUM_WRT	EQUAL TO
P135_AGC_BASELINE_JUMP	MAX_JUMP	LESS THAN	140		OCE1,CTUA/B,OEM1A/B/F,STD	5		ACTIVE_HEATER	EQUAL TO
P050_ENCROACH_BER	OTF_BER	GREATER THAN	7		OCTUA/B	6		TEST_TYPE	EQUAL TO
P_AFH_DH_BURNISH_CHECK	DELTA_BURNISH_CHECK	GREATER THAN	-12		OCE1/STD	7		ACTIVE_HEATER	EQUAL TO
P_AFH_DH_BURNISH_CHECK	DELTA_BURNISH_CHECK	GREATER THAN	-8		OCTUA/B,OEM1A/B/F	7		ACTIVE_HEATER	EQUAL TO
P050_ENCROACH_BER	BITS_IN_ERROR_BER	GREATER THAN	2.1		OCTUA/B	8		TEST_TYPE	EQUAL TO
P275_ZAP_AUDIT_STATS2	MAX_3SIGRRO	LESS THAN OR EQUAL TO	10		OEM1A	9			
P050_ENCROACH_BER	HARD_ERR_CNT	LESS THAN OR EQUAL TO	0		OCTUA/B	10		TEST_TYPE	EQUAL TO
P051_ERASURE_BER_DELTAS	OTF_BER_DELTA	LESS THAN	0.7		OCTUA/B	12		NUM_WRT_ERASURE	EQUAL TO
P107_UNVER_HD_TOTAL	UNVER	LESS THAN OR EQUAL TO	600000		OCTUA/B,OEM1A/B/F	12			
P_SETTLING_SUMMARY	HMS_CAP_1	GREATER THAN	1.5		OCE1,CTUA/B	13		WRT_CLRNC	EQUAL TO
P_SETTLING_SUMMARY	HMS_CAP_1	GREATER THAN OR EQUAL TO	1.3		OCTUA/B,OEM1A/B/F,STD	13			
P_SETTLING_SUMMARY	HMS_MRG_N_1	GREATER THAN	0		OCE1,OEM1A/B/F	14		WRT_CLRNC	EQUAL TO
P_SETTLING_SUMMARY	HMS_MRG_N_1	GREATER THAN	3.5		OCTUA/B	14		WRT_CLRNC	EQUAL TO
P_SETTLING_SUMMARY	DELTA_HMS_CAP_1	GREATER THAN	-1		OCTUA/B	15		WRT_CLRNC	EQUAL TO
P_SETTLING_SUMMARY	DELTA_HMS_CAP_1	GREATER THAN	-0.7		OCTUA/B,OEM1A/B/F	15		WRT_CLRNC	EQUAL TO
P_SETTLING_SUMMARY	DELTA_HMS_CAP_1	GREATER THAN OR EQUAL TO	-1.1		OCTUA/B,OEM1A/B/F	15		HMS_CAP_1	LESS THAN
P250_ERROR_RATE_BY_ZONE	RAW_ERROR_RATE	LESS THAN OR EQUAL TO	-1.8		OEM1A	16		SPC_ID	EQUAL TO
P134_TA_SUM_HD2	AMP7_CNT	LESS THAN OR EQUAL TO	10		OCTUA/B,OEM1A/B/F	17		AMP6_CNT	GREATER THAN
P2109_DFS_ERROR_STATS	ITRTN_ERR_CNT	LESS THAN OR EQUAL TO	550		OCE1,CTUA/B,OEM1A/B/F,STD	19			
P134_TA_DETCR_DETAIL	TA_SEVERITY	LESS THAN	5		35CE1,CTUA/B,OEM1A/B/F	20			
P050_ENCROACH_BER_NATIVE	ONE_PLUS_ECC_CNT	LESS THAN	419000		OCTUA/B,OEM1A/B/F,STD	21		HARD_ERR_CNT	GREATER THAN OR EQUAL TO
P315_INSTABILITY_METRIC	HD_INSTABILITY_METRIC	LESS THAN	28		OCE1,CTUA/B,OEM1A/B/F,STD	22			
P041_PES_SCREEN_MAX_VALS	MAX_PERCENT_DIFF_ID	LESS THAN	9.5		OCE1	23		MAX_PERCENT_DIFF_MD	GREATER THAN OR EQUAL TO
P_VBAR_FORMAT_SUMMARY	TPI_MRG_N	GREATER THAN OR EQUAL TO	-0.02		OCTUA	24		SPC_ID	EQUAL TO
P_VBAR_FORMAT_SUMMARY	TPI_MRG_N	GREATER THAN OR EQUAL TO	-0.03		OCTUB/OEM1A	24		SPC_ID	EQUAL TO
P051_ERASURE_BER	BITS_IN_ERROR_BER	GREATER THAN	1.9		OEM1A	25		NUM_WRT	EQUAL TO
P598_ZONE_XFER_RATE	MAX_TIME_PER_XFER	LESS THAN OR EQUAL TO	300000		OCTUA/B,OEM1A/B/F	25		DATA_ZONE	GREATER THAN OR EQUAL TO
P598_ZONE_XFER_RATE	RATIO	GREATER THAN OR EQUAL TO	0.5		OCTUA/B,OEM1A/B/F	25		DATA_ZONE	GREATER THAN OR EQUAL TO
P598_ZONE_XFER_RATE	CALC_RATE	GREATER THAN OR EQUAL TO	154		OEM1A	25		DATA_ZONE	EQUAL TO
P2109_DFS_BER_STATS_2	STD_DEV_RBIT_SER	LESS THAN	0.45		OCE1,CTUA/B,OEM1A/B/F,STD	27			
P_SETTLING_TCS_SUM_COMBO	MIN_HMS_CAP_1	GREATER THAN OR EQUAL TO	1.92		OCTUA/B,OEM1A/B/F,STD	30		MEAN_HMS_CAP_COLD	LESS THAN
P134_TA_SUM_HD2	TA_CNT	LESS THAN OR EQUAL TO	130		OCE1,CTUA/B,OEM1A/B/F	31			
P2109_DFS_BER_STATS	SER	GREATER THAN OR EQUAL TO	3.2		OALL	99	42231		
P2109_DFS_BER_STATS	RRRAW_BER	GREATER THAN OR EQUAL TO	2		OALL	99	48460		
P051_ERASURE_BER	HARD_ERR_CNT	LESS THAN OR EQUAL TO	0		OALL	99	48585NUM_WRT		EQUAL TO
P051_ERASURE_BER_DELTAS	OTF_BER_DELTA	LESS THAN OR EQUAL TO	2.1		OALL	99	14188NUM_WRT_ERASURE		EQUAL TO
P051_ERASURE_BER_DELTAS	OTF_BER_DELTA	LESS THAN	2		OALL	99	14188TRK_INDEX		GREATER THAN
P051_ERASURE_BER_DELTAS	OTF_BER_DELTA	LESS THAN	2		OALL	99	14188TRK_INDEX		LESS THAN
P315_INSTABILITY_METRIC	HD_INSTABILITY_METRIC	LESS THAN OR EQUAL TO	38		OALL	99	48455		
P150_GAIN_SUM_DELTA	MAX_CORR_GAIN_DELTA	LESS THAN OR EQUAL TO	2		OALL	99	48446		
P186_DETCR_RES	DETCR_RESISTANCE	GREATER THAN	40		OALL	99	48629SPC_ID		EQUAL TO
P186_DETCR_RES	DETCR_RESISTANCE	LESS THAN	160		OALL	99	48629DETCR_RESISTANCE		GREATER THAN
P186_DETCR_RES	BIAS_CURRENT	GREATER THAN	0		OALL	99	48629SPC_ID		EQUAL TO
P025_LOAD_STAT	LOAD_PEAK_CUR	LESS THAN	10		OALL	99	102795STAT_NAME		EQUAL TO

BP2 Customer Tab Testing

Product	Tab	Customer	TGTA	TGTP	TGTC	EC	Failure Cause
Grenada BP2	700	Apple	G2AED3006.APD1.AADN00.ZZZZ	G2AED30ZZ.SDP1.AADN00.ZZZZ	G2AED30ZZ.BRNB.AADN00.ZZZZ	N/A	
	701	Apple FFS	G2AED3001.APD2.AADN00.ZZZZ	G2AED30ZZ.SDP1.AADN00.ZZZZ	G2AED30ZZ.BRNB.AADN00.ZZZZ	N/A	
	740	Dell	G2AED3006.CCD4.AADN00.ZZZZ	G2AED30ZZ.SDP1.AADN00.ZZZZ	G2AED30ZZ.BRNB.AADN00.ZZZZ	N/A	
	760	Fujitsu	G2AED3006.CCD4.AADN00.ZZZZ	G2AED30ZZ.SDP1.AADN00.ZZZZ	G2AED30ZZ.BRNB.AADN00.ZZZZ	N/A	
	20	HP	G2AED3006.HPD1.AADN00.ZZZZ	G2AED30ZZ.SDP1.AADN00.ZZZZ	G2AED30ZZ.BRNB.AADN00.ZZZZ	EC 10854 Sense Data returned are not expected	F3/ PF3
	541	Lenovo	G2AED3006.CCD6.AADN00.ZZZZ	G2AED30ZZ.SDP1.AADN00.ZZZZ	G2AED30ZZ.BRNB.AADN00.ZZZZ	N/A	
	230	Samsung	G2AED3006.CCD4.AADN00.ZZZZ	G2AED30ZZ.SDP1.AADN00.ZZZZ	G2AED30ZZ.BRNB.AADN00.ZZZZ	N/A	
	232	Siemens	G2AED3006.CCD4.AADN00.ZZZZ	G2AED30ZZ.SDP1.AADN00.ZZZZ	G2AED30ZZ.BRNB.AADN00.ZZZZ	N/A	
	300	STD DISTI	G2AED3006.CCD4.AADN00.ZZZZ	G2AED30ZZ.SDP1.AADN00.ZZZZ	G2AED30ZZ.BRNB.AADN00.ZZZZ	N/A	
	500	STD OEM	G2AED3006.CCD4.AADN00.ZZZZ	G2AED30ZZ.SDP1.AADN00.ZZZZ	G2AED30ZZ.BRNB.AADN00.ZZZZ	N/A	
	900	CTU	G2AED3006.CCD4.AADN00.ZZZZ	G2AED30ZZ.SDP1.AADN00.ZZZZ	G2AED30ZZ.BRNB.AADN00.ZZZZ	N/A	
Bacall BP2	160	MOTOROLA	B2AED3006.SDC1.AADE00.ZZZZ	B2AED30ZZ.SDP1.AADE00	B2AED30ZZ.BRNB.AADE00	N/A	
	115	SHARP	B2AED3006.RPC1.AADE00.ZZZZ	B2AED30ZZ.SDP1.AADE00	B2AED30ZZ.BRNB.AADE00	N/A	
	671	THOMSON	B2AED3006.SDC1.AADE00.ZZZZ	B2AED30ZZ.SDP1.AADE00	B2AED30ZZ.BRNB.AADE00	N/A	
	852	SONY EVAL	B2AED3006.NYC1.AADE00.ZZZZ	B2AED30ZZ.SDP1.AADE00	B2AED30ZZ.BRNB.AADE00	N/A	
	262	ECHOSTAR TECHNOLOGY	B2AED3006.SDC1.G101DE.ZZZZ	B2AED30ZZ.SDP1.G101DE.ZZZZ	B2AED30ZZ.BRNB.G101DE.ZZZZ	EC 10648 Fail to get HDA Serial Number or HDA SN mismatch on reFIN	PF3
	635	PANASONIC EVAL	B2AED3006.MAC1.AADE00.ZZZZ	B2AED30ZZ.SDP1.AADE00	B2AED30ZZ.BRNB.AADE00	N/A	
	300	STD DISTI	B2AED3006.SDC1.AADE00.ZZZZ	B2AED30ZZ.SDP1.AADE00	B2AED30ZZ.BRNB.AADE00	N/A	
	500	STD OEM	B2AED3006.SDC1.AADE00.ZZZZ	B2AED30ZZ.SDP1.AADE00	B2AED30ZZ.BRNB.AADE00	N/A	
	900	CTU EVAL	B2AED3006.SDC1.AADE00.ZZZZ	B2AED30ZZ.SDP1.AADE00	B2AED30ZZ.BRNB.AADE00	N/A	
	125	PANASONIC	B2AED3006.MAC1.AADE00.ZZZZ	B2AED30ZZ.SDP1.AADE00	B2AED30ZZ.BRNB.AADE00	14761-Failed CSetDriveConfigAttributes	DCM
	509	STD OEM	B2AED3006.SDC1.AADE00.ZZZZ	B2AED30ZZ.SDP1.AADE00	B2AED30ZZ.BRNB.AADE00	14761-Failed CSetDriveConfigAttributes	DCM
	141	SONY	B2AED3006.NYC1.AADE00.ZZZZ	B2AED30ZZ.SDP1.AADE00	B2AED30ZZ.BRNB.AADE00	14761-Failed CSetDriveConfigAttributes	DCM

1. GBP2 HP, this item task for PCO 5. Issue exists on CPC and SIC. SPT process is working. ECD 1/31/14
2. BBP2, Echostar, is working on the branch for PCO 4.3, and official fix on TIPS and PCO 5. ECD 1/31/14
3. BBP2, Panasonic/Sony/STD OEM. These failures are not process code related, once we have the ECR submitted to fix CCAs and implemented in DCM, this error will disappear.

SPC ID

- SPC ID is a test parameter used to differentiate between test calls and tables
- There is no clearly defined set of rules to assigning SPC ID but in general, PRE2 should use a range of 10000-19999, CAL2 should use 20000-29999, FNC2 is 30000-39999 and FIN2 is 40000+
- Many test calls don't need a specific SPC ID, so those default to either 1, 0 or 'None'
- Main use is to filter on SPC_ID when applying GOTF criteria, see below

```
<row>
  <Criteria_Table>P_VBAR_FORMAT_SUMMARY</Criteria_Table>
  <Criteria_Column>TPI_MRGN</Criteria_Column>
  <Criteria_Op>GREATER THAN OR EQUAL TO</Criteria_Op>
  <Criteria_Value>-0.02</Criteria_Value>
  <Num_Violations>0</Num_Violations>
  <Business_Group>CTUA</Business_Group>
  <Grade_Position>24</Grade_Position>
  <Grade_Level>1</Grade_Level>
  <Filter1_Item>SPC_ID</Filter1_Item>
  <Filter1_Op>EQUAL TO</Filter1_Op>
  <Filter1_Value>20500</Filter1_Value>
</row>
```

```
32825 Jan 03 2014-00:11:21 Parameters==> ([0, 0, 0, 0], [],)
```

```
32826 Jan 03 2014-00:11:21 **SPC_ID32=20000 CMT=None
```

```
32827
```

```
32828 P_VBAR_FORMAT_SUMMARY:
```

32829	HD_PHYS_PSN	DATA_ZONE	HD_LGC_PSN	BPI_CAP	BPI_INTERPOLATED	BPI_PICK	BPI_MRGN
32830	0	0	0	0.9853	N	0.9299	0.0554
32831	0	1	0	0.9894	Y	0.9398	0.0496
32832	0	2	0	0.9926	Y	0.9398	0.0554

```
112997 Jan 03 2014-05:09:58 Parameters==> ([0, 0, 0, 0], [],)
```

```
112998 Jan 03 2014-05:09:58 **SPC_ID32=20500 CMT=None
```

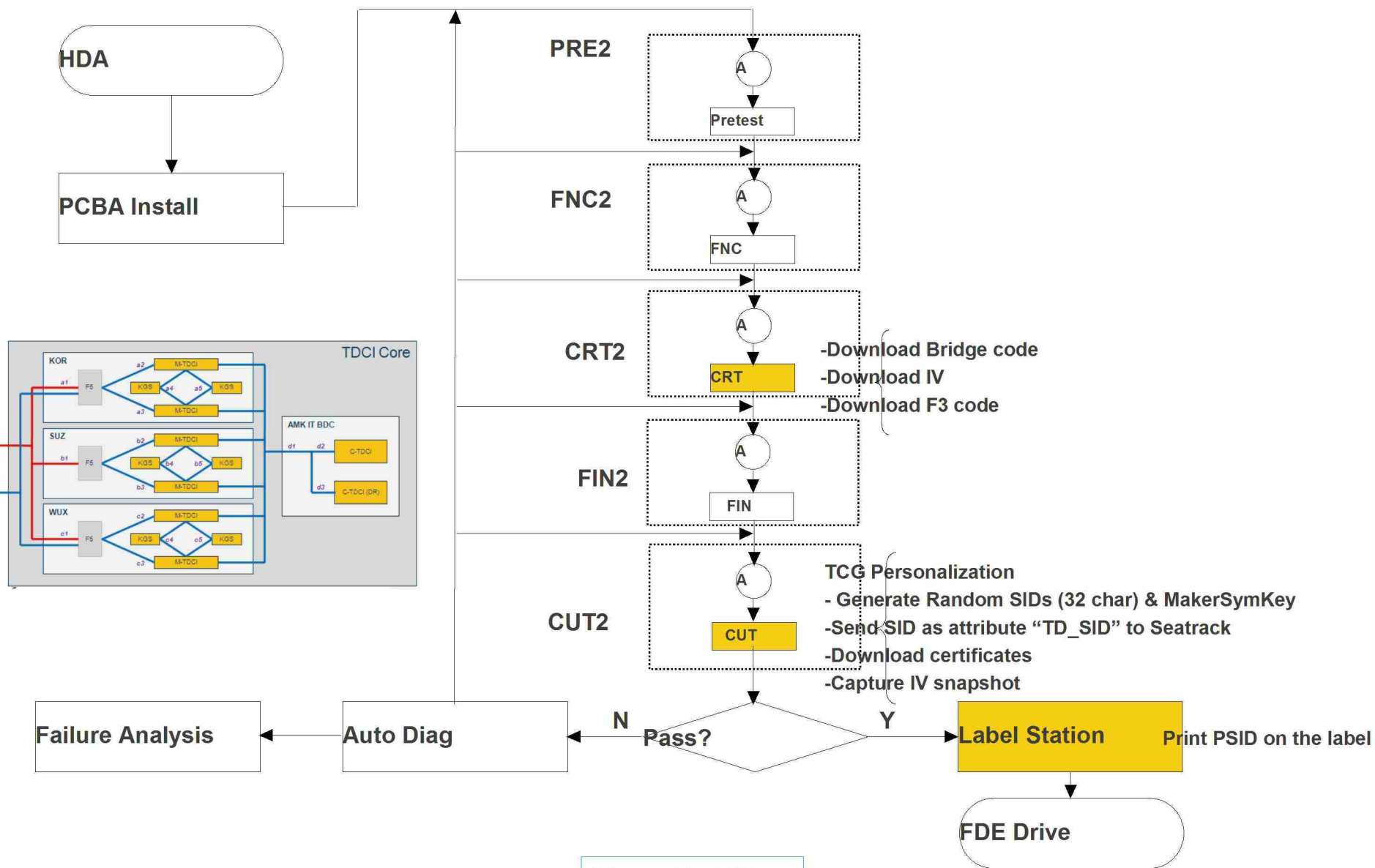
```
112999
```

```
113000 P_VBAR_FORMAT_SUMMARY:
```

113001	HD_PHYS_PSN	DATA_ZONE	HD_LGC_PSN	BPI_CAP	BPI_INTERPOLATED	BPI_PICK	BPI_MRGN
113002	0	0	0	0.8527	N	0.7997	0.053
113003	0	1	0	0.9795	Y	0.9295	0.05
113004	0	2	0	0.9942	Y	0.9484	0.0458

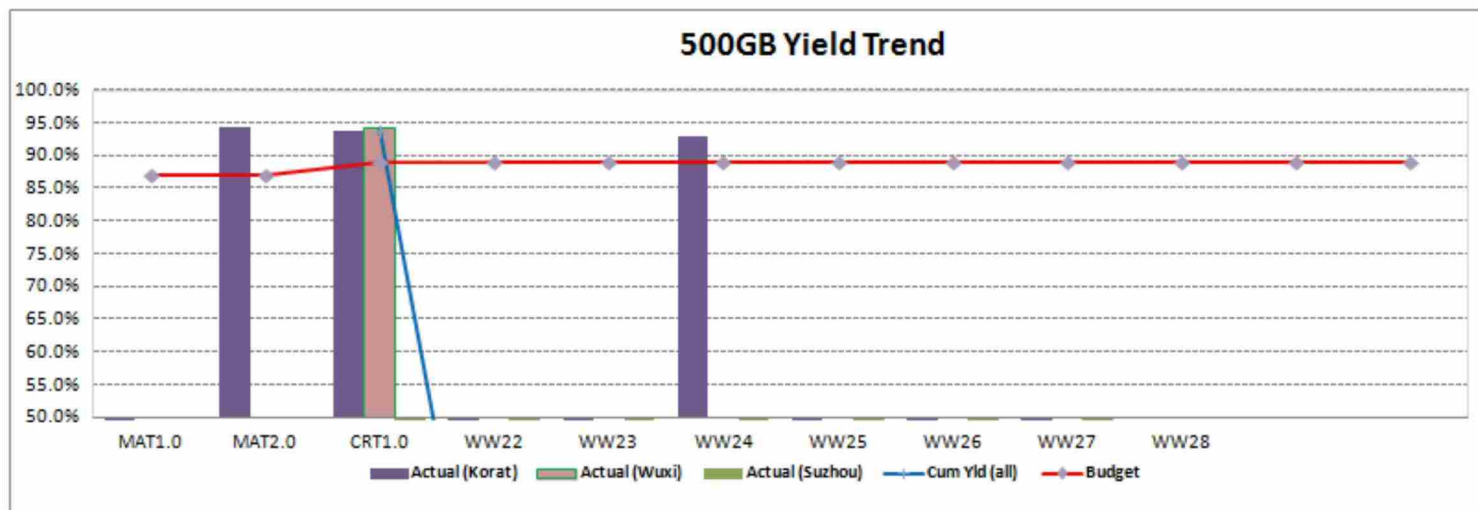
TCG Self Encrypting Drive (SED) Process Flow

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HengNgi Yeo



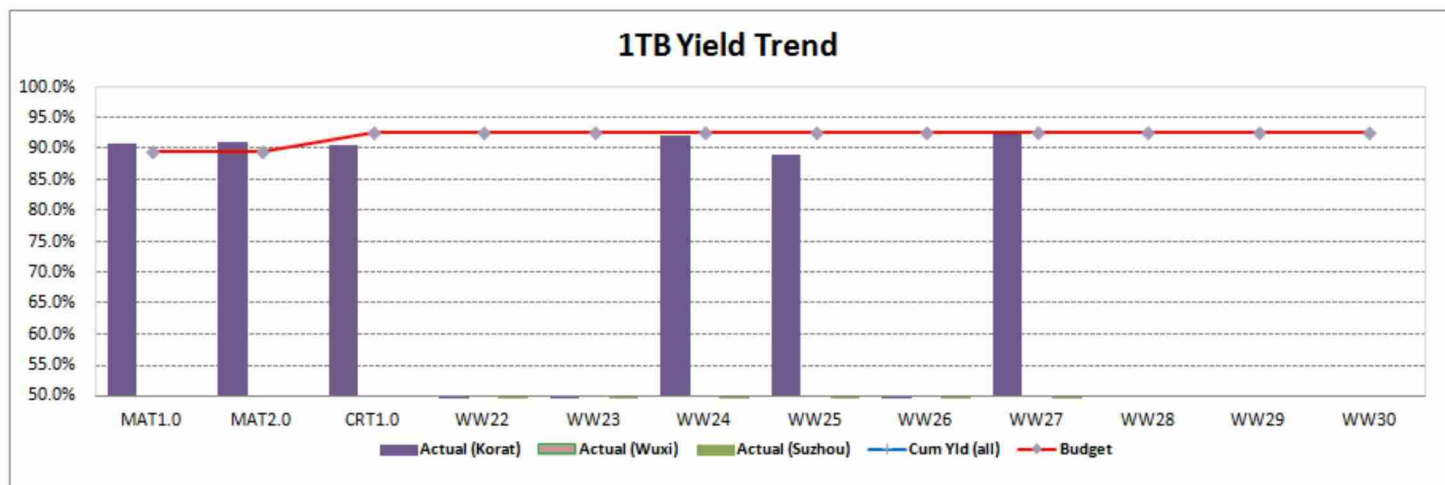


**94% yield.
achieved budget.**

No gap to BP.

Grenada 500GB Prime yield	MAT1.0	MAT2.0	CRT1.0	WW22	WW23	WW24	WW25	WW26	WW27	WW28	WW29	WW30
Phase/PCO	N/A	GB2_03_1	GB2_04_1	GB2_04_2					GB2_04_3			
Actual (Korat)	N/A	94.4%	93.9%	LV	LV	93.1%	LV	LV	LV			
Volume	N/A	1001	328	LV	LV	4853	LV	LV	LV			
Actual (Wuxi)			94.2%	LV	LV	LV	LV	LV	LV			
Volume			263	LV	LV	LV	LV	LV	LV			
Actual (Suzhou)			NA	LV	LV	LV	LV	LV	LV			
Volume			NA	LV	LV	LV	LV	LV	LV			
Cum Yld (all)			94.1%	LV	LV	LV	LV	LV	LV			
Volume			591	LV	LV	LV	LV	LV	LV			
Budget	87.1%	87.1%	89.1%	89.1%	89.1%	89.1%	89.1%	89.1%	89.1%	89.1%	89.1%	89.1%





93% yield.
achieved budget.

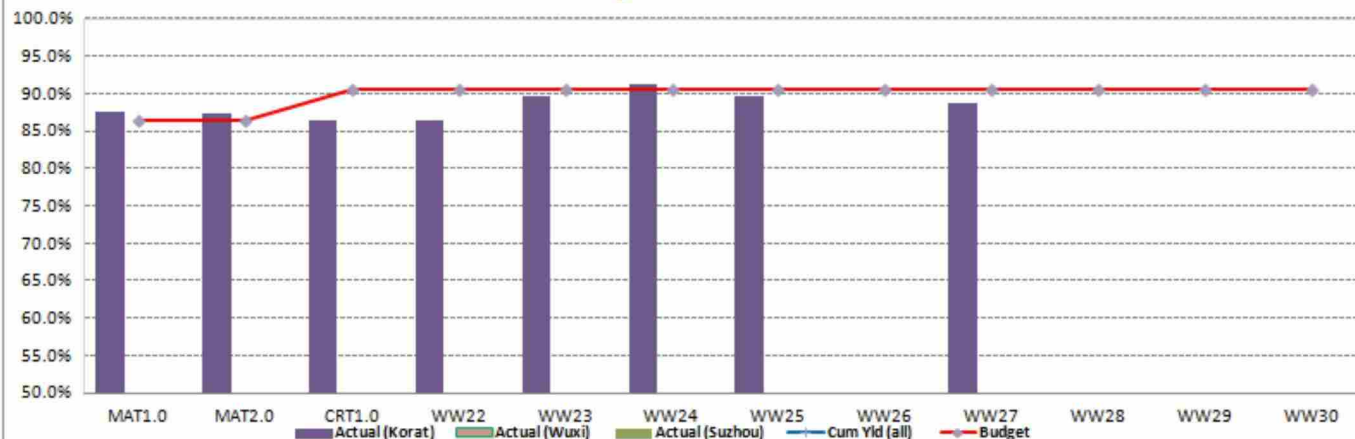
0.6% gap to BP

Grenada 1TB Prime yield	MAT1.0	MAT2.0	CRT1.0	WW22	WW23	WW24	WW25	WW26	WW27	WW28	WW29	WW30
Phase/PCO	GB2_02_2	GB2_03_1	GB2_04_1	GB2_04_2					GB2_04_3			
Actual (Korat)	90.9%	91.2%	90.6%	LV	LV	92.3%	89.1%	LV	93.0%			
Volume	778	379	452	LV	LV	5144	992	LV	1286			
Actual (Wuxi)				LV	LV	LV	LV	LV	LV			
Volume				LV	LV	LV	LV	LV	LV			
Actual (Suzhou)				LV	LV	LV	LV	LV	LV			
Volume				LV	LV	LV	LV	LV	LV			
Cum Yld (all)				LV	LV	LV	LV	LV	LV			
Volume				LV	LV	LV	LV	LV	LV			
Budget	89.6%	89.6%	92.7%	92.7%	92.7%	92.7%	92.7%	92.7%	92.7%	92.7%	92.7%	92.7%

Yield Loss	Failure Causes	Status
1.30%	HEAD INSTABILITY_METRIC > 28 or 38	(a) GOTF spec refinements in PCO 5.0 to recovery 30 to 40% (b) investigate by TIMO (90x were ship to RHO on W1428) to try with new Stability2.0 test suit,
1.20%	AFH related fails. Primary symptom are from ID roll off due to contam. Higher failure trend on PNG slider vs TK slider	Special builds with 4 legs, between MPT/NHK, TK/PNG slider/ Also add BP to be control to identify where the problem was from.
0.40%	Blister defect from wash process	TCL180 detergent to reduce this. 100% phase in by JAN
0.20%	Apple Bluenun scan failure	Allow downgrade to other OEM or Disty in PCO 5.0



2TB/4H Yield Trend

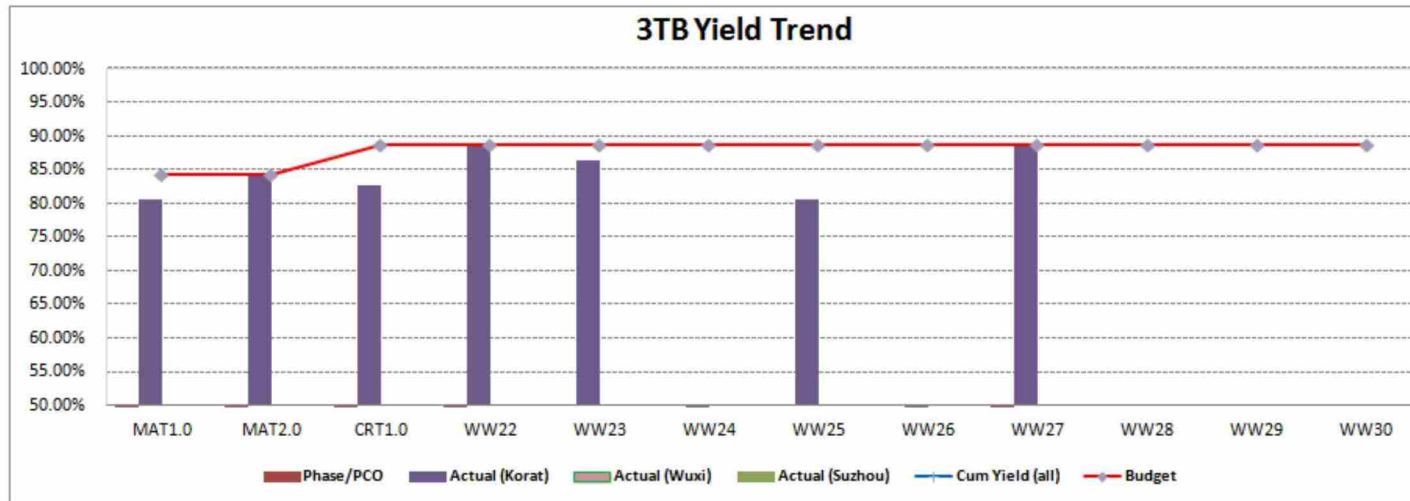


88.8% yield.
1.9% below budget.

3.7% gap to BP

Grenada 2TB/4H Prime yield	MAT1.0	MAT2.0	CRT1.0	WW22	WW23	WW24	WW25	WW26	WW27	WW28	WW29	WW30
Phase/PCO	GB2_02_2	GB2_03_1	GB2_04_1	GB2_04_2					GB2_04_3			
Actual (Korat)	87.6%	87.5%	86.5%	86.5%	89.8%	91.4%	89.8%	LV	88.8%			
Volume	766	405	727	1004	2979	1958	1454	LV	3986			
Actual (Wuxi)												
Volume												
Actual (Suzhou)												
Volume												
Cum Yld (all)												
Volume												
Budget	86.6%	86.6%	90.7%	90.7%	90.7%	90.7%	90.7%	90.7%	90.7%	90.7%	90.7%	90.7%

Yield Loss	Failure Causes	Status
1.80%	HEAD INSTABILITY_METRIC > 28 or 38	(a) GOTF spec refinements in PCO 5.0 to recovery 30 to 40% (b) investigate by TIMO (90x were ship to RHO on W1428) to try with new Stability2.0 test suit,
1.50%	AFH related fails. Primary symptom are from ID roll off due to contam. Higher failure trend on PNG slider vs TK slider	Special builds with 4 legs, between MPT/NHK, TK/PNG slider/ Also add BP to be control to identify where the problem was from.
0.90%	EC10414 PRE2 : found damage on Spacer issue	Working with SQE to get the closure

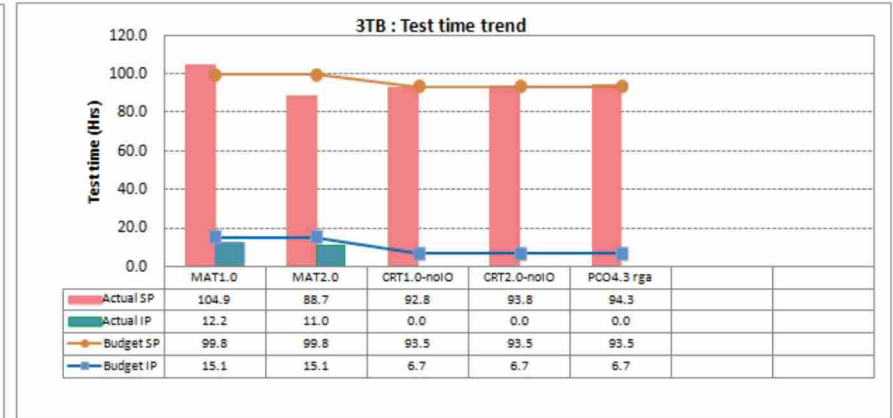
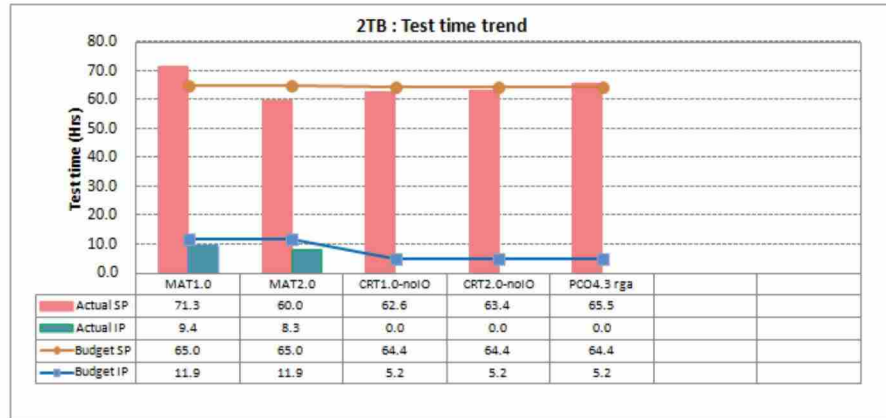
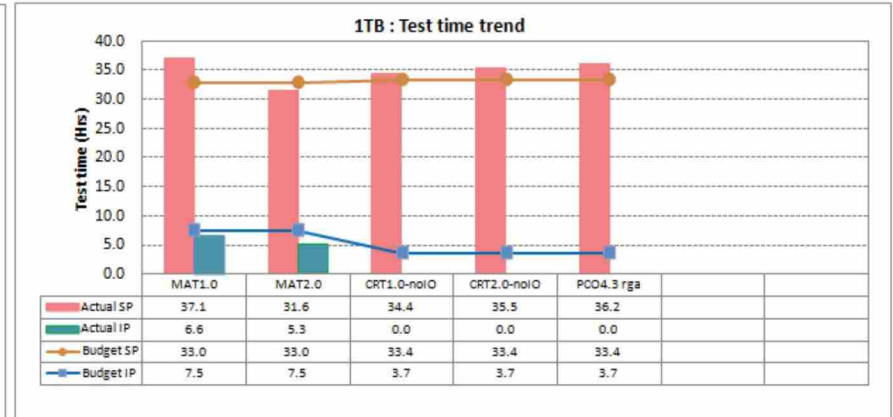
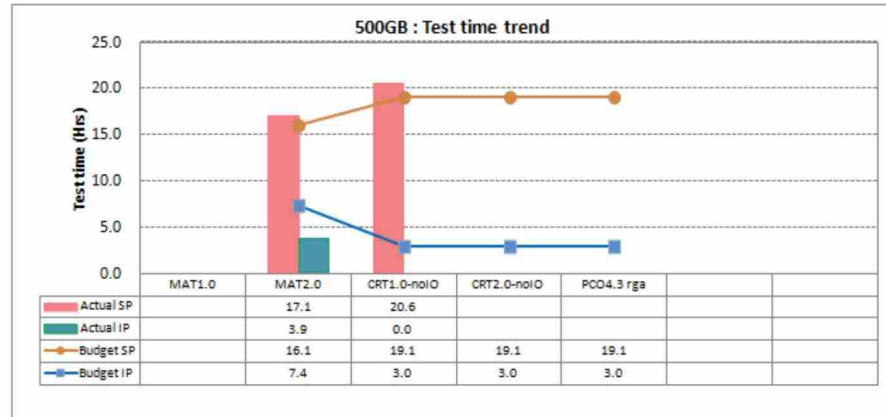


Grenada 3TB Prime yield	MAT1.0	MAT2.0	CRT1.0	WW22	WW23	WW24	WW25	WW26	WW27	WW28	WW29	WW30
Phase/PCO	GB2_02_2	GB2_03_1	GB2_04_1	GB2_04_2					GB2_04_3			
Actual (Korat)	80.7%	84.2%	82.8%	88.5%	86.5%	LV	80.7%	LV	88.7%			
WTF ratio (Korat)	0.3%	0.0%	0.0%	0.1%	0.1%	LV	0.5%	LV	0.0%			
Volume	910	236	642	913	1989	LV	1518	LV	1986			
Actual (Wuxi)												
WTF ratio (Wuxi)												
Volume												
Actual (Suzhou)												
WTF ratio (Suzhou)												
Volume												
Cum Yield (all)												
Volume												
Budget	84.4%	84.4%	88.8%	88.8%	88.8%	88.8%	88.8%	88.8%	88.8%	88.8%	88.8%	88.8%

Yield Loss	Failure Causes	Status
2.00%	HEAD INSTABILITY_METRIC > 28 or 38	(a) GOTF spec refinements in PCO 5.0 to recovery 30 to 40% (b) investigate by TIMO (90x were ship to RHO on W1428) to try with new Stability2.0 test suit,



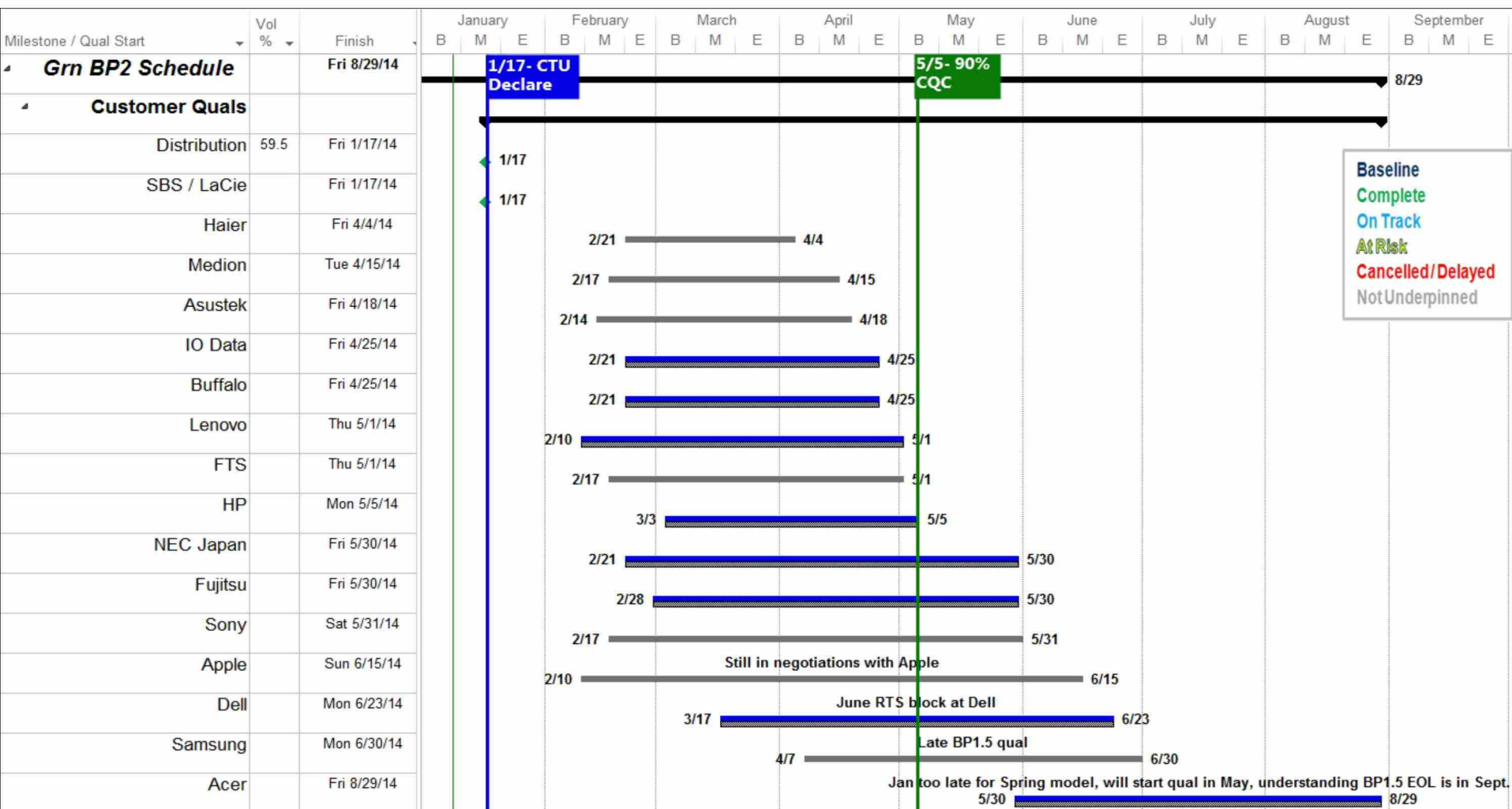
Test Time By Configs :



MS1407B0	Q3FY2014	Q4FY2014	Q1FY2015	Q2FY2015	Q3FY2015
GrenadaBP2 500GB	27,495	700,000	700,000	700,000	700,000
GrenadaBP2 1.0TB	715,699	1,567,482	3,430,469	4,637,012	4,458,076
GrenadaBP2 2.0TB	525,579	1,629,783	2,212,681	2,792,963	2,621,245
GrenadaBP2 3.0TB	177,560	557,192	926,000	991,434	948,314
GrenadaBP2 Total	1,418,838	3,754,457	6,569,150	8,421,409	8,027,635

MS1407B0	Q3FY2014	Q4FY2014	Q1FY2015	Q2FY2015	Q3FY2015
BacallBP2 1.0TB		547,034	1,375,255	1,630,879	1,630,879
BacallBP2 2.0TB	23,000	575,483	982,162	983,559	983,866
BacallBP2 3.0TB		204,499	265,848	265,848	265,848
BacallBP Total	23,000	1,327,016	2,623,265	2,880,286	2,880,593





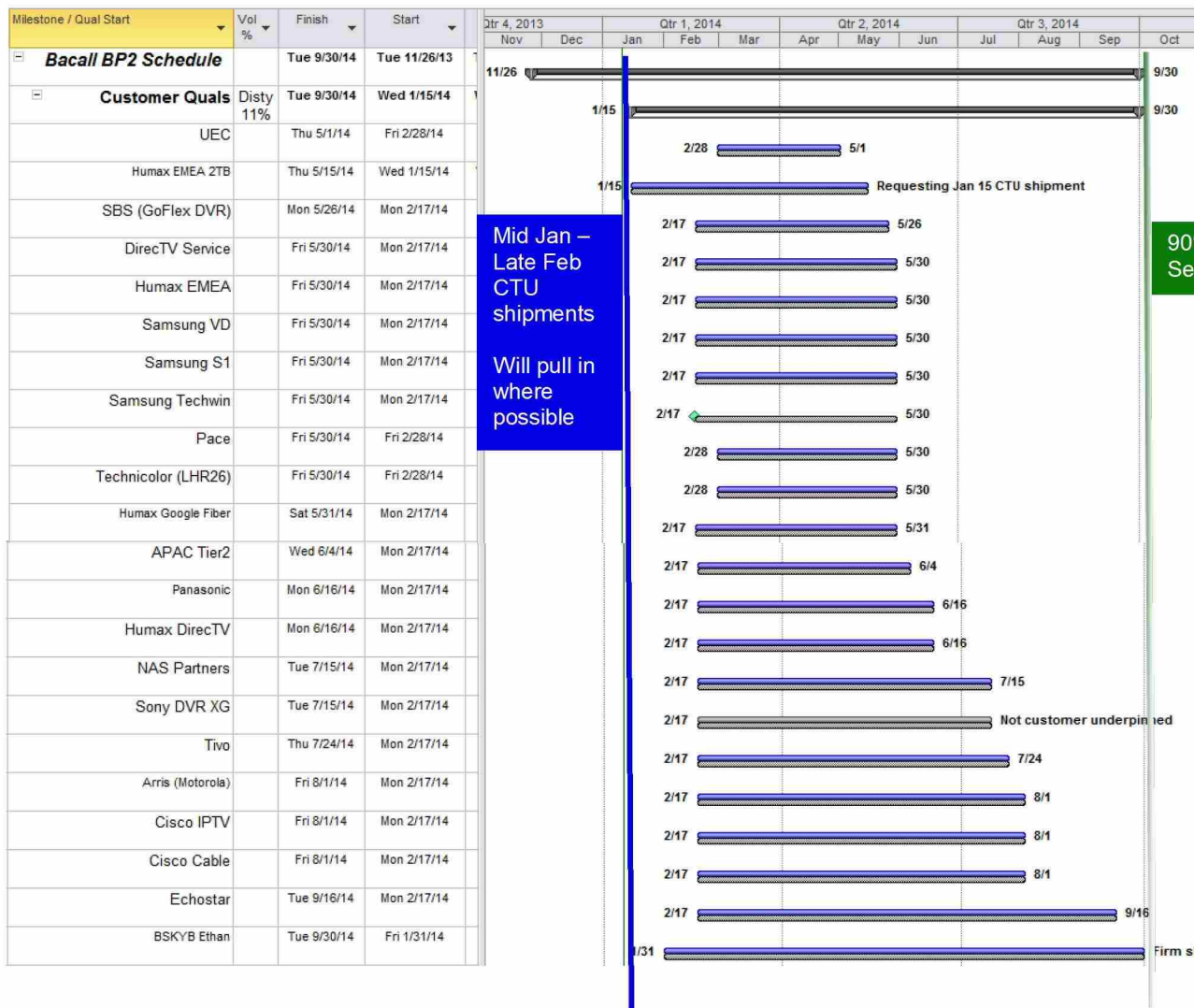
Apple: STX communicated in August '13 that BP2 must be qualified by end of June to maintain supply continuity. Apple has still not agreed to this schedule.

Dell: have changed to quarterly block schedule, BP2 falls into CQ3 RTS block.

Lenovo: pulling for early start. Will ship CTUs concurrently with Lenovo EST testing.

HP: Schedule underpinned. March start due to OEM RDT completion in Feb. CTUs ship late Feb.





BP2 RDT 400K Demo – On track for ~Mid Jan '14

DVR – Jan 15 Humax 2TB units to hold qualification slot; Jan 31 BSKYB 1TB units to meet system schedule

NAS – Gated by Rapid RAID Rebuild functionality and performance test comparisons across segments; Plan to close this feature and it's testing inside Jan '14

SV – Apr 1 (external); Internal dates to be solidified by PLM/DE team ASAP

GrenadaBP2 SAD Costs Package

January 2014



GrenadaBP2 Assumptions

Lombard 4TB 8/4, no 3TB KV waterfall; drive waterfall to Lombard 3TB

- Drive yields per core team: Based on Lombard 8/4 CMC projections
- ET Yields per core team: Based on Lombard CMC Projections
- Media Yields per Nov CMC: Based on Lombard CMC Projections
- WRR
- BOM per Lombard 8H CMCs, with the added costs for KV PCBA
- Volumes per PLM



Materials Detail:										
	GBP 1TB 2H	GBP 1TB 2H	GBP 1TB 2H	GBP2 1TB 2H	GBP2 1TB 2H	GBP2 1TB 2H	Delta	Delta	Delta	
	Qtr3-14	Qtr4-14	Qtr1-15	Qtr3-14	Qtr4-14	Qtr1-15	Qtr3-14	Qtr4-14	Qtr1-15	Comments
Total MBA	\$4.07	\$4.05	\$4.05	\$4.07	\$4.05	\$4.05	\$0.00	\$0.00	\$0.00	
HSA	\$5.63	\$5.59	\$5.63	\$5.76	\$5.71	\$5.74	(\$0.13)	(\$0.12)	(\$0.11)	
PCCA - LOH	\$0.42	\$0.41	\$0.41	\$0.48	\$0.47	\$0.47	(\$0.07)	(\$0.06)	(\$0.06)	reset new PN
Connector-PCCA	\$0.14	\$0.14	\$0.14	\$0.13	\$0.13	\$0.12	\$0.01	\$0.01	\$0.01	
Flex	\$0.44	\$0.43	\$0.43	\$0.52	\$0.51	\$0.51	(\$0.08)	(\$0.08)	(\$0.08)	reset new PN
Preamp	\$0.63	\$0.63	\$0.63	\$0.59	\$0.58	\$0.57	\$0.04	\$0.05	\$0.06	Lombard PreAmp
Suspension Assembly	\$1.41	\$1.40	\$1.40	\$1.45	\$1.44	\$1.44	(\$0.04)	(\$0.04)	(\$0.04)	reset new PN
HDA	\$3.52	\$3.51	\$3.51	\$3.45	\$3.37	\$3.36	\$0.07	\$0.14	\$0.15	
Cover	\$0.85	\$0.84	\$0.84	\$0.79	\$0.71	\$0.70	\$0.06	\$0.13	\$0.14	304SS vs 430 SS
PCBA Foam	\$0.01	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	
PCBA	\$7.72	\$7.61	\$7.54	\$7.42	\$7.30	\$7.23	\$0.30	\$0.31	\$0.31	
Flash	\$0.15	\$0.15	\$0.15	\$0.19	\$0.18	\$0.18	(\$0.03)	(\$0.03)	(\$0.03)	
Controller	\$3.81	\$3.74	\$3.67	\$3.55	\$3.48	\$3.41	\$0.26	\$0.26	\$0.26	LuxorLite vs Luxsor
Discrete	\$0.21	\$0.21	\$0.21	\$0.16	\$0.16	\$0.16	\$0.05	\$0.05	\$0.05	
PCB	\$0.66	\$0.64	\$0.64	\$0.66	\$0.64	\$0.64	(\$0.00)	\$0.00	\$0.00	
Sensor-PCBA	\$0.13	\$0.13	\$0.13	\$0.10	\$0.10	\$0.10	\$0.03	\$0.03	\$0.03	
Total Mtrl BOM	\$20.95	\$20.76	\$20.73	\$20.71	\$20.44	\$20.38	\$0.24	\$0.32	\$0.34	BOM reduction for GBP2
Total Scrap	\$0.83	\$0.72	\$0.70	\$0.90	\$0.79	\$0.75	(\$0.07)	(\$0.07)	(\$0.05)	
Total Warranty	\$0.73	\$0.70	\$0.70	\$2.66	\$1.74	\$1.19	(\$1.94)	(\$1.04)	(\$0.49)	Jan CMC Warranty reduction:
Drive Freight	\$0.66	\$0.62	\$0.58	\$0.66	\$0.62	\$0.58	\$0.00	\$0.00	(\$0.00)	
Total TVC	\$23.18	\$22.81	\$22.72	\$24.95	\$23.60	\$22.92	(\$1.77)	(\$0.79)	(\$0.19)	
Total TVC adj w/o WRR							\$0.17	\$0.25	\$0.30	



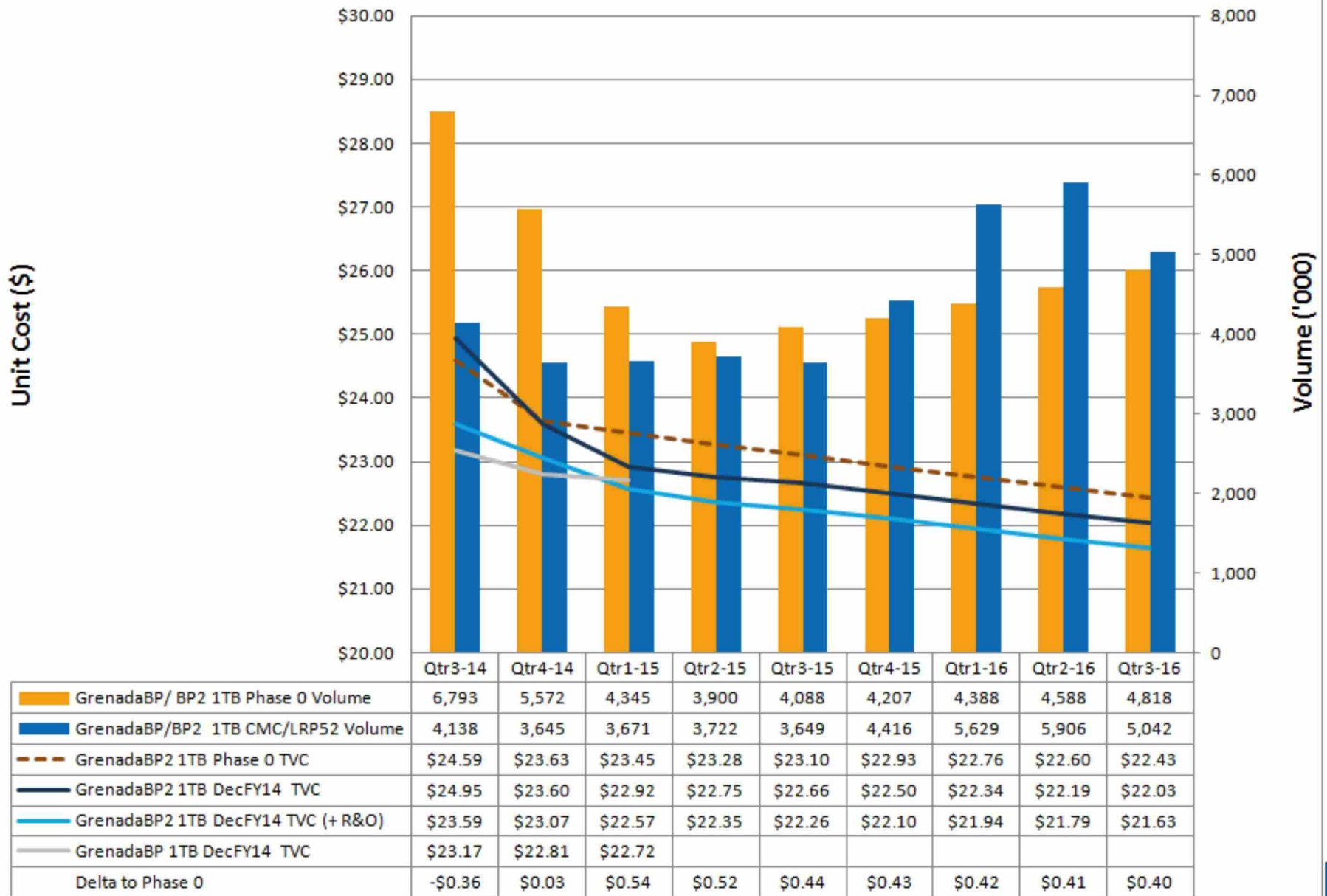
	GBP 2TB 4H Qtr3-14	GBP 2TB 4H Qtr4-14	GBP 2TB 4H Qtr1-15	GBP2 2TB 4H Qtr3-14	GBP2 2TB 4H Qtr4-14	GBP2 2TB 4H Qtr1-15		Delta Qtr3-14	Delta Qtr4-14	Delta Qtr1-15	Comments
Total MBA	\$4.77	\$4.75	\$4.73	\$4.77	\$4.77	\$4.75		\$0.00	(\$0.02)	(\$0.02)	
Motor	\$2.27	\$2.27	\$2.25	\$2.27	\$2.29	\$2.27		\$0.00	(\$0.02)	(\$0.02)	Balance feature
HSA	\$7.55	\$7.49	\$7.48	\$7.73	\$7.66	\$7.65		(\$0.19)	(\$0.17)	(\$0.17)	
PCCA - LOH	\$0.42	\$0.42	\$0.42	\$0.48	\$0.48	\$0.48		(\$0.06)	(\$0.06)	(\$0.06)	New PN reset
Flex	\$0.54	\$0.54	\$0.54	\$0.67	\$0.65	\$0.65		(\$0.13)	(\$0.11)	(\$0.11)	New PN reset
Preamp	\$0.83	\$0.83	\$0.83	\$0.75	\$0.74	\$0.74		\$0.08	\$0.09	\$0.09	Lombard PreAmp
Suspension Assembly	\$2.82	\$2.80	\$2.80	\$2.90	\$2.89	\$2.88		(\$0.08)	(\$0.09)	(\$0.09)	New PN reset
HDA	\$5.13	\$5.12	\$5.12	\$5.01	\$4.93	\$4.91		\$0.13	\$0.19	\$0.21	additional \$0.23 with PDSP
Cover	\$0.85	\$0.84	\$0.84	\$0.79	\$0.71	\$0.70		\$0.07	\$0.13	\$0.14	304SS vs 430 SS
Disc Clamp	\$0.42	\$0.42	\$0.42	\$0.36	\$0.36	\$0.35		\$0.06	\$0.06	\$0.07	Lombard clamp
PCBA Foam	\$0.01	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00		\$0.01	\$0.01	\$0.01	
PCBA	\$7.72	\$7.61	\$7.54	\$7.42	\$7.30	\$7.23		\$0.30	\$0.31	\$0.31	
Flash	\$0.15	\$0.15	\$0.15	\$0.19	\$0.18	\$0.18		(\$0.03)	(\$0.03)	(\$0.03)	4M to 8M flash
Controller	\$3.81	\$3.74	\$3.67	\$3.55	\$3.48	\$3.41		\$0.26	\$0.26	\$0.26	LuxorLite vs Luxsor
Discrete	\$0.21	\$0.21	\$0.21	\$0.16	\$0.16	\$0.16		\$0.05	\$0.05	\$0.05	
Sensor-PCBA	\$0.13	\$0.13	\$0.13	\$0.10	\$0.10	\$0.10		\$0.03	\$0.03	\$0.03	
Total Mtrl BOM	\$25.18	\$24.97	\$24.87	\$24.94	\$24.66	\$24.55		\$0.24	\$0.31	\$0.33	BOM reduction for GBP2
Total Scrap	\$2.86	\$2.77	\$2.64	\$2.46	\$2.40	\$2.53		\$0.40	\$0.37	\$0.11	
Total Warranty	\$0.97	\$0.95	\$0.94	\$3.03	\$2.00	\$1.56		(\$2.05)	(\$1.05)	(\$0.61)	
Drive Freight	\$0.78	\$0.73	\$0.69	\$0.78	\$0.73	\$0.69		\$0.00	(\$0.00)	(\$0.00)	
Total TVC	\$29.82	\$29.44	\$29.17	\$31.23	\$29.81	\$29.35		(\$1.42)	(\$0.37)	(\$0.17)	
Total TVC adj w/o WRR								\$0.64	\$0.68	\$0.44	



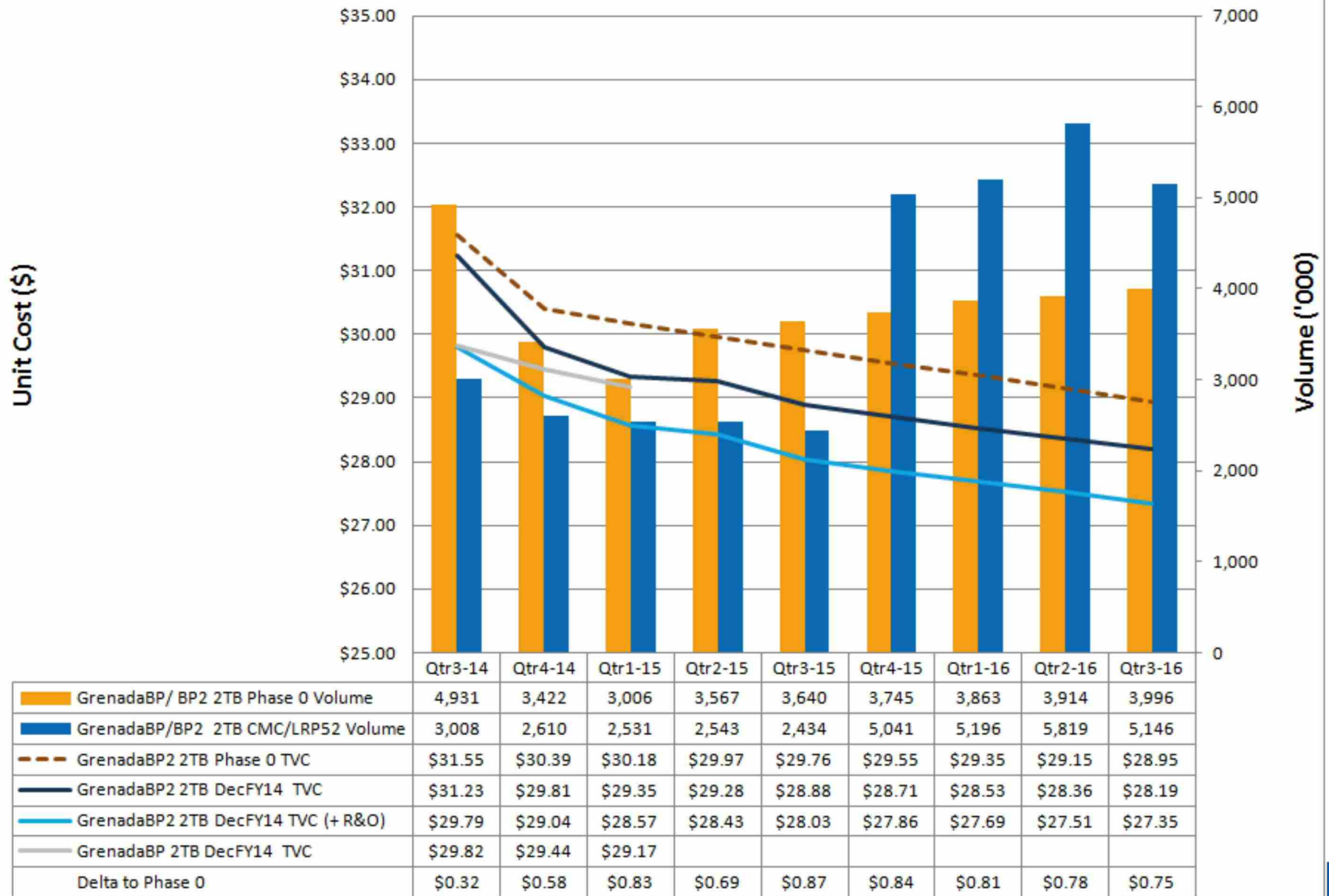
	GBP 3TB 6H	GBP 3TB 6H	GBP 3TB 6H	GBP2 3TB 6H	GBP2 3TB 6H	GBP2 3TB 6H	Delta	Delta	Delta	
	Qtr3-14	Qtr4-14	Qtr1-15	Qtr3-14	Qtr4-14	Qtr1-15	Qtr3-14	Qtr4-14	Qtr1-15	Comments
Total MBA	\$5.08	\$5.05	\$5.03	\$5.08	\$5.07	\$5.05	\$0.00	(\$0.02)	(\$0.02)	
Motor	\$2.27	\$2.27	\$2.25	\$2.27	\$2.29	\$2.27	\$0.00	(\$0.02)	(\$0.02)	Balance feature
HSA	\$9.51	\$9.43	\$9.43	\$9.77	\$9.69	\$9.69	(\$0.26)	(\$0.26)	(\$0.26)	
PCCA - LOH	\$0.42	\$0.42	\$0.42	\$0.48	\$0.48	\$0.48	(\$0.06)	(\$0.06)	(\$0.06)	New PN reset
Flex	\$0.58	\$0.57	\$0.57	\$0.71	\$0.70	\$0.70	(\$0.14)	(\$0.13)	(\$0.13)	New PN reset
Preamp	\$1.12	\$1.12	\$1.12	\$1.07	\$1.06	\$1.06	\$0.05	\$0.06	\$0.06	Lombard PreAmp
Suspension Assembly	\$4.24	\$4.20	\$4.19	\$4.35	\$4.33	\$4.33	(\$0.11)	(\$0.13)	(\$0.13)	New PN reset
HDA	\$6.40	\$6.39	\$6.39	\$6.20	\$6.18	\$6.18	\$0.20	\$0.20	\$0.21	additional \$0.46 with PDSP
Cover	\$1.40	\$1.39	\$1.39	\$1.26	\$1.25	\$1.25	\$0.14	\$0.14	\$0.14	304SS vs 430 SS
Disc Clamp	\$0.42	\$0.42	\$0.42	\$0.36	\$0.36	\$0.35	\$0.06	\$0.06	\$0.06	Lombard clamp
PCBA Foam	\$0.01	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	
PCBA	\$7.72	\$7.61	\$7.54	\$7.42	\$7.30	\$7.23	\$0.30	\$0.31	\$0.31	
Flash	\$0.15	\$0.15	\$0.15	\$0.19	\$0.18	\$0.18	(\$0.03)	(\$0.03)	(\$0.03)	4M to 8M flash
Controller	\$3.81	\$3.74	\$3.67	\$3.55	\$3.48	\$3.41	\$0.26	\$0.26	\$0.26	LuxorLite vs Luxsor
Discrete	\$0.21	\$0.21	\$0.21	\$0.16	\$0.16	\$0.16	\$0.05	\$0.05	\$0.05	
Sensor-PCBA	\$0.13	\$0.13	\$0.13	\$0.10	\$0.10	\$0.10	\$0.03	\$0.03	\$0.03	
Total Mtrl BOM	\$28.70	\$28.48	\$28.38	\$28.47	\$28.25	\$28.14	\$0.24	\$0.23	\$0.24	BOM reduction for GBP2
Total Scrap	\$3.34	\$3.07	\$3.16	\$3.57	\$3.04	\$2.90	(\$0.22)	\$0.03	\$0.26	
Total Warranty	\$1.08	\$1.04	\$1.04	\$3.69	\$2.48	\$1.88	(\$2.62)	(\$1.44)	(\$0.84)	
Drive Freight	\$0.80	\$0.75	\$0.71	\$0.80	\$0.75	\$0.71	(\$0.00)	(\$0.00)	(\$0.00)	
Total TVC	\$33.96	\$33.38	\$33.32	\$36.56	\$34.56	\$33.67	(\$2.60)	(\$1.18)	(\$0.35)	
Total TVC adj w/o WRR							\$0.01	\$0.26	\$0.49	



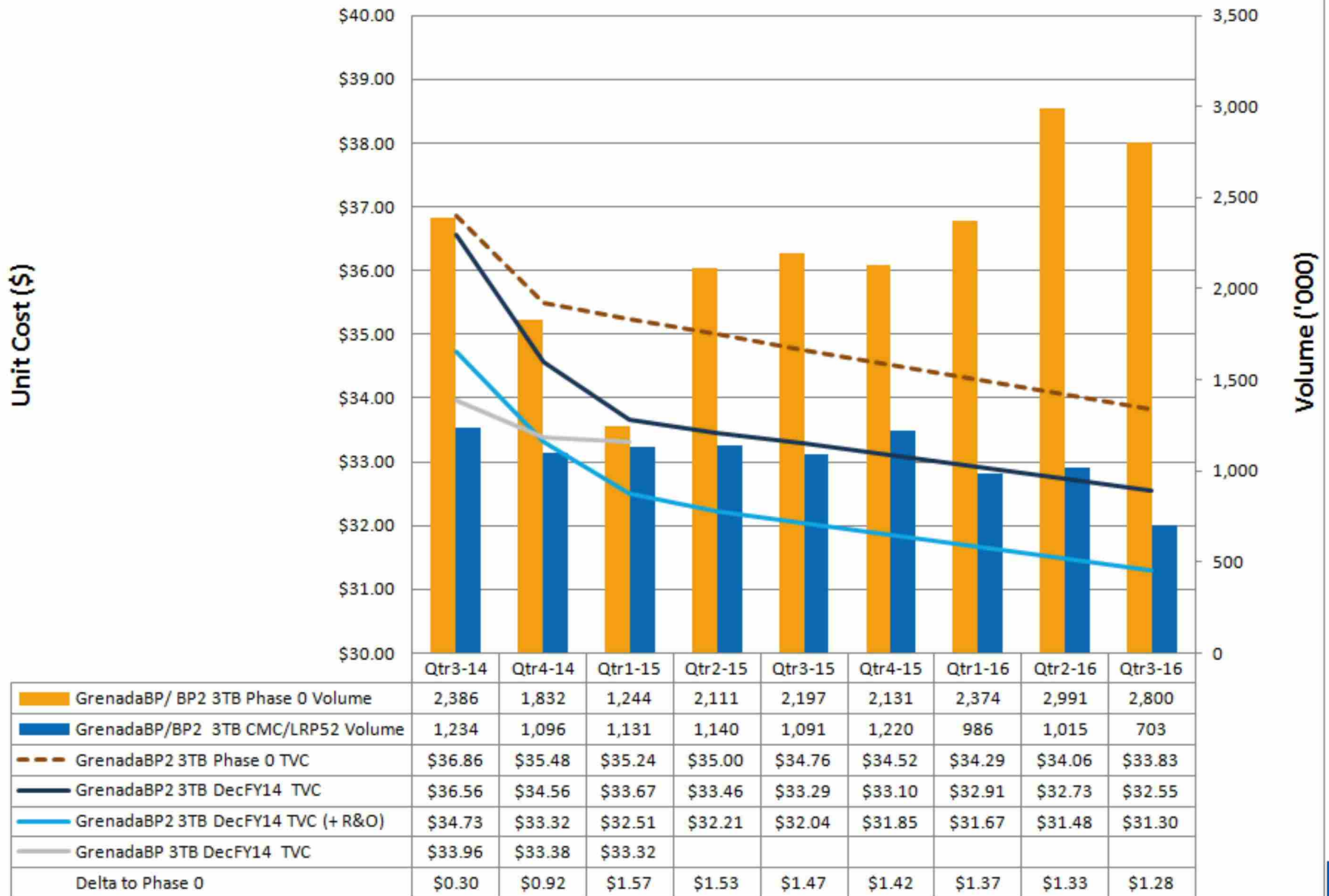
GrenadaBP2 1TB DecFY14 vs Ph0 TVC



GrenadaBP2 2TB DecFY14 vs Ph0 TVC



GrenadaBP2 3TB DecFY14 vs Ph0 TVC



Grenada BP2 Plastic DSP Saving Projections

MS1407A0	Capacity	Q3FY2014	Q4FY2014	Q1FY2015	Q2FY2015	Q3FY2015
GRENADABP2	500	26,195	699,998	700,000	700,000	700,000
	1,000	601,100	1,567,482	3,430,469	4,637,012	4,458,076
	2,000	478,282	1,629,783	2,212,681	2,792,963	2,621,245
	3,000	184,560	557,192	926,000	991,434	948,314

- Plastic DSP current saving is \$0.23, expect to erode savings to \$0.20 for additional process cleaning.
- One DSP in 2TB, and two DSP's in the 3TB.

	Q314	Q414	Q115	Q215	Q315	Total
2TB	478282	1629783	2212681	2792963	2621245	9734954
3TB	184560	557192	926000	991434	948314	3607500
1 DSP	0.2	0.2	0.2	0.2	0.2	0.2
2 DSP	0.4	0.4	0.4	0.4	0.4	0.4
2TB Savings	\$95,656.40	\$325,956.60	\$442,536.20	\$558,592.60	\$524,249.00	\$ 1,946,990.80
3TB Savings	\$73,824.00	\$222,876.80	\$370,400.00	\$396,573.60	\$379,325.60	\$ 1,443,000.00

- Total 5 Quarter saving on 2TB is ~\$1.95 Million
- Total 5 Quarter saving on 3TB is ~\$1.45 Million
- Total 5 Quarter programs savings is ~\$3.4 Million

Grenada / Bacall BP2 CTU / SAD Readiness - Materials

January 13, 2014

Bob Kolanda



Materials Summary

• MS1407B0 Grenada / Bacall Demand outlook:

MS1407B0	Q3FY2014	Q4FY2014	Q1FY2015	Q2FY2015	Q3FY2015
GrenadaBP2 500GB	27,495	700,000	700,000	700,000	700,000
GrenadaBP2 1.0TB	715,699	1,567,482	3,430,469	4,637,012	4,458,076
GrenadaBP2 2.0TB	525,579	1,629,783	2,212,681	2,792,963	2,621,245
GrenadaBP2 3.0TB	177,560	557,192	926,000	991,434	948,314
GrenadaBP2 Total	1,418,838	3,754,457	6,569,150	8,421,409	8,027,635
MS1407B0	Q3FY2014	Q4FY2014	Q1FY2015	Q2FY2015	Q3FY2015
BacallBP2 1.0TB		547,034	1,375,255	1,630,879	1,630,879
BacallBP2 2.0TB	23,000	575,483	982,162	983,559	983,866
BacallBP2 3.0TB		204,499	265,848	265,848	265,848
BacallBP Total	23,000	1,327,016	2,623,265	2,880,286	2,880,593

• CTU Bag of Parts Critical items:

- **MBA** – Nidec NCCP / Nidec Th, SemKorat, MD balance capable + Option 3 samples on Nidec
- **Media** – RMO 10.5B+ / 9LT + ODM 9LT versions, LIM and MIM, no Showa
- **Plastic DSP** – Hi P planned for non Apple CTU. Using dbbl seal version to minimize particle failures
- **430SS Top Cover** – Seksun Ch and Thailand. 304SS not included, removed from BOM
- **Clamp** – Lombard version 1 for MD balance capable Grenada and Bacall. Version 2 in qual now. Bacall BP2 issue mitigated with Consign HGA only in CTU.
- **Stack / Wafer** – 100% uPemto, RHO NRM and Springtown / Consigned TDK, RHO includes bar bake
- **TGA / Suspension** – 11.3.1 / NHK and MPT versions allowed
- **Pre amp** – LSI and TI all configurations. No restrictions
- **PCBA** – ST and TI Dillon (TI version 4.2 qualified in CRT1 on both Grenada and Bacall BP2)
- **DDR** – No shrink parts included

Materials Summary

- **Volume Ramp Bag of Parts:**

- **MBA** – Same as CTU, Option 3 Nidec (end plate material change for DPPM improvement) in Qual, ECD mid February, implementation start in FQ4
- **Media** – Same as CTU, Showa currently a BP1 item. No near term plans for qual
- **Plastic DSP:**
- **Hi P** – 4 cavities conditionally approved. Volume implementation pending cleanliness improvements to address NMD failures seen in CRT1. DC working with Hi P for viable volume solution. ECD for volume by end
- **FEP** – No 1st article approvals. Target FQ3 for 1st article, FQ4 for demonstrated cleanliness and approval. Likely ramp beginning FQ1'15
- **“Common” BOM HDA items** – Common to BP1, fully approved
- **430SS Top Cover** – Seksun Ch fully approved. MMI Ch qual in Feb, MMI qual in FQ4
- **Lombard Clamp** – Version 2 in Qual, ECD full approval with all 3 suppliers by mid February.
- **Stack / Wafer** – Same as CTU, for Bacall BP2 Ramp add RHO with completion of Lombard clamp qual
- **TGA / Suspension** – Same as CTU. 11.3.1 / NHK and MPT versions allowed
- **Hook up / PCCA / PCC** – Current status included. All subcon items planned for full approval with completion of CRT2 in February.
- **Electrical:**
- **Preamp** – all configurations / TI and LSI are approved.
- **Luxor lite** – LSI single sourced, TSMC 14 fully approved
- **ST Dillon** – M5 and Agrate fully qualified
- **TI Dillon** - Volume usage pending resolution and qual for Bridging, Modulation and Vcore issues. Lead frame change samples due in March, passive changes and likely Servo FW revisions required for other issues. Full qual ECD by end FQ2'15
- **DDR Shrinks** – Samples in FQ3 on Samsung, Hynix and Nanya. Qual and release to OEMs in FQ4
- **Flash** – Elite disqualified, no sample dates for re qual. Add Micron for qual with DDR.

Key Materials Items – Remaining HU / PCCA / PCC quals

Part #	1D	ASL	WW28	WW32	Comments / Actions
100713905	Mektec SZ PCCA LSI	P		Target Full	Pending CRT2 Reli Completion
100716580	Mektec SZ PCCA TI	P		Target Full	Pending CRT2 Reli Completion
2D					
100717875	BEW HU LSI	AE		Target Full	Pending CRT2 Reli Completion
100724673	BEW HU TI	AE	Leverage AS from 100717875	Target Full	Pending CRT2 Reli Completion
100713907	BEW PCCA LSI	AE		Target Full	Pending CRT2 Reli Completion
100716583	BEW PCCA TI	AE	Leverage AS from 100713907	Target Full	Pending CRT2 Reli Completion
100713907	Mektec SZ PCCA LSI	P	Leverage AS from 100716583	Target Full	Pending CRT2 Reli Completion
100716583	Mektec SZ PCCA TI	P		Target Full	Pending CRT2 Reli Completion
100713907	Mektec Th PCCA LSI	AE	Leverage AS from 100716583	Target Full	Pending CRT2 Reli Completion
3D					
100721737	BEW PCCA LSI	AE	Leverage AS 100728025	Target Full	Pending CRT2 Reli Completion
100728076	BEW PCCA TI	AE		Target Full	Pending CRT2 Reli Completion
100729824	CPT HU LSI	AE	Leverage AS 100729825	Target Full	Pending CRT2 Reli Completion
100729824	CPW HU LSI	AE	WUGGD41189A - CRT2	Target Full	No clear indication of fault cause, combination included in CRT2
100729825	CPW HU TI	AE	Full will leverage 100729824 as AS	Target Full	
100721737	Mektec SZ PCCA LSI	P		Target Full	Pending CRT2 Reli Completion
100728076	Mektec SZ PCCA TI	P		Target Full	Pending CRT2 Reli Completion

Key Materials Items – Post SAD items

P/N	Supplier (SSP)	Target Qual	Actions, Owners, Dates to Closure
100660334	SEIKO INSTRUMENTS (THAILAND) GATEWAY	Post SAD - February	Pending 1st article submittal for Auto Line
100713905	MEKTEC NPCT - PCCA 1D LSI	Post SAD - Feb / March	New Supplier Site
100713906	MEKTEC NPCT - PCC 1D	Post SAD - Feb / March	New Supplier Site
100713907	MEKTEC NPCT - PCCA 2D LSI	Post SAD - Feb / March	New Supplier Site
100713909	MEKTEC NPCT - PCC 2D	Post SAD - Feb / March	New Supplier Site
100716580	MEKTEC NPCT - PCCA 1D TI	Post SAD - Feb / March	New Supplier Site
100716583	MEKTEC NPCT - PCCA 2D TI	Post SAD - Feb / March	New Supplier Site
100717977	FUJIKURA ELECTRONICS THAI LTD - LSI	Post SAD - March	SWOT Resolution, RGA WW33
100721737	MEKTEC NPCT - PCCA 3D LSI	Post SAD - Feb / March	New Supplier Site
100721739	MEKTEC NPCT - PCC 3D LSI	Post SAD - Feb / March	New Supplier Site
100724787	FUJIKURA ELECTRONICS THAI LTD - TI	Post SAD - March	SWOT Resolution, RGA WW33
100728076	MEKTEC NPCT - PCCA 3D TI	Post SAD - Feb / March	New Supplier Site
100728078	MEKTEC NPCT - PCC 3D TI	Post SAD - Feb / March	New Supplier Site
100729251	SEIKO INSTRUMENTS (THAILAND) GATEWAY	Post SAD - January	Pending 1st article submittal for Auto Line
100738738	NIDEC RANGSIT FACTORY (NIRT), Option 3	Post SAD - February	End Cap Change for DPPM Improvement
100738739	NIDEC ZHEJIANG CORP (NIPC), Option 3	Post SAD - February	End Cap Change for DPPM Improvement
100738740	NIDEC RANGSIT FACTORY (NIRT) Option 3	Post SAD - February	End Cap Change for DPPM Improvement
100738741	NIDEC ZHEJIANG CORP (NIPC) Option 3	Post SAD - February	End Cap Change for DPPM Improvement
100738836	NIDEC RANGSIT FACTORY (NIRT) Option 3	Post SAD - February	End Cap Change for DPPM Improvement
100738837	NIDEC ZHEJIANG CORP (NIPC) Option 3	Post SAD - February	End Cap Change for DPPM Improvement
703518200	SEIKO INSTRUMENTS (THAILAND) GATEWAY	Post SAD - January	Pending 1st article submittal for Auto Line
707647900	Hi-P - Plastic DSP	Post SAD - March	Approvals pending cleanliness improvements
707647900	FEP - Plastic DSP	Post SAD - June	Approvals pending cleanliness improvements

Key Materials Items – AMLR Status / Closure plans

AMLR Summary per SSP

Total Items Tracked = 309

- Currently @ AB / AD / AS = 292 / 94%
- Currently @ AE = 11 / 4%
- Currently @ P = 6 / 2%
- Post SAD (not included in count) = 23

Includes:

- 500GB, 1h/ 1D Top and Bottom Depop Models
- 1-2-3D Native + 3D/4H Models
- Bacall Unique Items
- PCBA / Electrical

Recommendation – Approve SAD. Ongoing actions not gating CTU / critical to volume support in FQ4:

- Finalize Supply chain Qualifications on HU / PCCA / PCC in CRT2
- Complete 430SS MMI Ch Qual in Feb
- Continue with post SAD qual staging on DDR shrink, TI Dillon, SIT Gateway and 1D / 1H evaluations on new actuator machining.

Key Supply Chain Documents

SSP



Grenada SSP
Rev10 1_13_14

AMLR to BOM



AMLR Exceptions
to BOM 1_13

Ramp Readiness



RRR Package
11_03 Allsup

ADR3 Document



Grenada BP2
ADR3 Document

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Back Up

CONFIDENTIAL

Product Summary

Product	Highlight
GrenadaBP2	Ref. Config plan rev.41, No supply issue.
Crawford	Ref. Config plan rev63, Overall no HGA supply issue. On AB7/NB7 childlot (BL#433 & 474) HGA commit in WW29 & WW31 based on slider supply. Need LCO to adjust drive build based on materials readiness. On additional HSA BL#478,482,476,477 (520HSA) within materials lead time, HSA is able to support in WW33 based on PCC & ACA supply in late of Jan.
Angsana1DH	Ref. Config rev2.8, No issue.
Chengai1D	Ref. Config rev3.3, Gen1D has shipped 20HSA in WW27 & plan to 280HSA in WW28. Balance 100HSA plan to ship in WW29 due to late hook up supply.
Angsana2D	Ref. Config rev.6.5, No HGA supply issue.
Avenger	Ref. TCO Schedule 01/02. Gen 3 Builds : RHO allow to start build Gen 3 on 1/3. Expect to recover all in WW29.
Thunderbolt	Ref. TCO schedule 12/18. Gen3 HGA demand 0.9K in WW28 will use HGA passser from WQ build per RHO CT instruction. HGA plan to ship in WW29. The WQ testing is still pending for RHO CT to finalize ET TSR & specification. Chkpt 01/09.
ValkyrieBP	Ref. TCO schedule 12/20 - Fairlane look ahead HGA build is in progress and requires RHO CT review HGA data prior making shipment to Kaifa. So, HGA plans to ship 1.8K in WW29. - RDT HGA demand 30K in WW29 has been seperated to 22.4K PX5 wafer and 8.4K NL6 wafer. No issue to support 22.4K PX5 in WW29. On NL6 wafer, HGA will commit partial commit in WW30 & complete in WW31 based on wafer-slider supply. Need TCO to adjust drive build accordingly.
Makara	Ref. Config plan rev.85, Mat 6.0 for Teparuk HGA qualification has complered & shipped in WW27. TK : Gen2 Builds . RHO decided to stop MAT 6 HSA build 1 day due to Drive reli and CERT fails (Potentail to use wafer 2A to replace 9C). Checkpoint with RHO/LCO CT 1/9. MAT6 BL#380/376/382 H SA commits based on BIT Hook ups supply plan ETA 2/10. H SA to be built 2/11 (ww33). 6D NL rework qual/BL#600 qty 643 HSAs HSA need to re-build. Pending BIT HU new commit. Check point 1/9.

Media Demand/Supply Delta – Q3'14 MS

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MS1407B0												Q3'14
Requirement (MS1407B0)	Plan	Plan	Plan	Plan	Plan	Plan	Plan	Plan	Plan	Plan	Plan	Plan
Commit (MS1407B0)				Feb				Mar				
EOH (Cum Delta)	w28	w29	w30	w31	w32	w33	w34	w35	w36	w37	w38	w39
YarraBP	6	6	8	8	4	1	10	12	6	0	0	0
YarraR	157	123	171	166	67	27	15	163	324	498	566	502
Kahuna	247	282	230	250	356	207	44	26	101	173	237	256
Angsana	41	31	16	16	27	18	16	16	17	17	17	17
Angsana2D / 2DH / H	0	0	0	0	0	0	0	0	32	13	6	0
M8	1,188	663	678	983	953	474	667	506	336	721	930	1,224
M9T	29	1	24	303	353	474	461	570	679	669	569	469
F3	5	5	10	0	0	0	0	0	0	0	0	0
Pharaoh	290	274	383	200	101	326	428	428	579	521	379	536
Grenada	407	1,244	2,093	2,036	1,657	2,260	2,501	2,510	2,691	2,949	3,534	4,274
Hepburn	28	275	227	258	177	143	99	69	38	99	248	489
Bacall	146	95	157	73	17	73	101	157	213	269	353	431
Lombard	119	171	217	262	285	338	384	395	425	493	427	381
Crawford	0	0	0	0	20	18	16	8	1	2	3	9
MuskiePlus	0	25	49	32	8	27	0	0	0	0	0	0
Mantaray	0	0	0	0	0	0	0	0	0	0	0	0
Megalodon	1,992	1,753	1,455	1,433	1,480	1,676	1,755	1,689	1,382	1,150	964	565
Makara	11	41	31	31	10	27	7	55	82	92	83	96
Eagle	36	262	317	266	204	256	249	268	244	244	233	286
Compass	3	3	3	3	3	3	3	3	3	3	3	3
Airwalker	294	267	267	181	154	181	207	303	341	394	447	400
Yellow Jacket	233	269	305	333	297	290	297	305	341	305	254	259
LightningBug	158	207	295	349	365	371	371	383	366	399	431	460
Valkyrie	0	0	0	0	0	0	0	0	0	2	2	1
Ironman	0	0	0	0	0	0	4	7	15	15	23	37
Avenger	0	0	0	0	0	0	0	0	0	0	0	0
Thunderbolt	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL @ RMO	5,391	5,995	6,942	7,183	6,738	7,189	7,635	7,873	8,216	9,029	9,710	10,694
TOTAL @ RMO without M8/M9/F3	4,169	5,326	6,230	5,898	5,432	6,241	6,507	6,797	7,201	7,638	8,211	9,000

Grenada/Megalodon – Building more to cater for upside..

LB – 126k (Kao) FG on hold pending usage .. Approval WW30.

Media Demand/Supply Delta – Q4'14 MS

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MS1407B0														Q4'14
Requirement (MS1407B0)		Plan	Plan	Plan	Plan	Plan	Plan	Plan	Plan	Plan	Plan	Plan	Plan	Plan
Commit (MS1407B0)		Apr				May				Jun				
EOH (Cum Delta)	w39	w40	w41	w42	w43	w44	w45	w46	w47	w48	w49	w50	w51	w52
YarraBP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
YarraR	502	447	382	313	253	72	314	348	401	126	161	197	140	62
Kahuna	256	140	189	243	233	259	125	183	237	137	190	174	186	190
Angsana	17	8	6	7	23	38	19	20	36	52	35	17	30	44
Angsana2D / 2DH / H	0	29	22	33	26	20	49	44	38	33	37	31	21	12
M8	1,224	1,351	1,478	1,555	1,632	1,709	1,786	1,863	1,790	1,717	1,644	1,596	1,548	1,755
M9T	469	560	651	742	833	924	915	906	897	888	879	860	696	532
F3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pharaoh	536	491	416	410	388	450	460	424	338	175	127	66	445	809
Grenada	4,274	4,125	3,907	3,714	3,629	3,506	3,383	3,244	3,033	2,846	2,658	2,422	2,327	2,511
Hepburn	489	435	384	345	272	230	189	148	180	228	311	253	261	330
Bacall	431	403	375	347	347	291	235	235	263	263	263	263	263	289
Lombard	381	315	300	273	201	268	274	280	286	308	354	304	306	307
Crawford	9	8	15	20	28	33	41	46	54	59	89	41	35	28
MuskiePlus	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mantaray	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Megalodon	565	285	717	1,030	1,211	1,364	1,518	1,720	1,648	1,467	1,286	938	826	788
Makara	96	162	170	223	83	46	53	45	29	69	46	23	182	71
Eagle	286	217	238	218	209	294	362	370	360	368	370	269	217	285
Compass	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Airwalker	400	398	453	498	454	445	436	438	424	429	434	368	387	401
Yellow Jacket	259	226	236	232	214	224	220	216	197	150	160	127	137	147
LightningBug	460	355	391	426	469	495	492	474	443	422	445	375	421	440
Valkyrie	1	11	24	35	46	57	67	77	72	68	69	45	23	1
Ironman	37	23	36	32	37	65	65	79	72	79	107	82	81	81
Avenger	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thunderbolt	0	0	0	0	0	0	0	0	0	0	0	25	0	0
TOTAL @ RMO	10,694	9,993	10,394	10,700	10,590	10,796	11,006	11,164	10,801	9,887	9,670	8,480	8,540	9,087
TOTAL @ RMO without	9,000	8,081	8,264	8,402	8,125	8,162	8,304	8,395	8,114	7,282	7,147	6,023	6,295	6,800

Q3'14 HGSA supply status

MS1407B0		Jan		Feb				Mar					Issues / Actions
EOH (Cum delta)		ww29	ww30	ww31	ww32	ww33	ww34	ww35	ww36	ww37	ww38	ww39	
Pharaoh/Hepburn	HGA Native S8	195	38	816	1422	1406	1290	1313	1230	1098	2011	2086	No supply issue with very tight HGA supply in Jan.
	HGA Native S7	193	(1)	271	363	313	267	301	239	145	469	640	
	HGA BTC S6	40	44	41	65	27	(14)	(58)	(84)	(104)	(79)	(67)	
13wks MS1407A0	Total HGA	429	80	1127	1850	1746	1543	1557	1385	1140	2401	2660	
Pharaoh/Hepburn	HGA Native	(173)	(549)	477	1152	1062	651	460	66	(409)	578	827	Drive upside 1M ; +280K/Jan, +3K/Feb, +723K/Mar (2M HGA). HGA shortfalls in ww29-30 & ww36-37 (per max wafer/SLD due to lead-time issue). Continue working on wafer/SLD improvement.
	HGA BTC	(36)	(39)	(48)	(29)	(74)	(127)	(183)	(222)	(253)	(241)	(231)	
MS1407B0	Total HGA	(209)	(587)	430	1122	988	524	277	(156)	(663)	338	595	
Grenada Summary	HGA Native S7	610	452	1324	1755	2037	1644	1617	2162	2556	2457	1992	Drive cut -0.5M (-2M HGA) - No supply issue.
	HGA S6	(187)	(240)	(202)	(263)	(199)	(144)	(65)	(1)	89	84	72	
MS1407B0	TTL HGA	423	212	1122	1493	1838	1500	1552	2162	2645	2541	2064	
YarraR	HGA	(175)	(175)	(133)									Drive cut 55K in Jan, maximize Wuxi build and fast truck Hook-up shipments, this helps to reduce drive gap in Jan from 284K to 79K which will be able to recover in Feb. - No customer impact.
	Hook up	(82)	(95)	(80)	(43)								
MS1407B0	Drive		(79)	(79)	(79)	(60)							

Q4'14 – No supply issue

Excess Material – WW29 Status

Scrap by Factory / Owner

Total Grenada / Bacall BP2 Factory & DC Excess Material = \$334k

- **Korat TTL “on Hold” Material = \$311K**

- \$12k - Plastic DSP from December Retail, Pending cleanliness resolution

- \$299k slider / Wafer Qual Material – RHO

- **Wuxi TTL “on Hold Material = \$12.5k**

- \$4.6k RHO, due to PZT conductivity failures

- \$7.9k all other materials

- **SZ TTL “on Hold” Material = \$10.1k**

- \$3.2k RHO, MPT issue

- \$6.9k all other mechanical items

- **LCO DC = ~ \$50**

- WW29 Factory Excess Report below, Factory detail on following pages



Factory Excess
WW29

Scrap Detail WW29 - Korat

Updated as of 13 Jan '14	On-Hold \$	Remarks	Status
HDA's level Inventory - Korat			
PLATE,SEPARATOR p/n: 707647900 cost \$0.75 & 0.9 (Good-1550+12000,Bad-0)	11963	Plastic DSP is being modified by LCO, this version may be unusable for Mass volume, holding it in UPS store and internal hub while waiting for disposition from Bob and LCO	Hold pending cleanliness methodology determination
HGA Inventory @ Teparuk			
Slider wip (Good - Bad -130,478)	88725	Slider not ChunkM/8, SSO#NBSS06121,NBSS06155	RHO Disposition Required
HGA wip (Good - 0, Bad - 130,846)	209877	HGA excess from WQ & Evalauton	
(Korat) Total Grenada BP2 Cost		\$310,565	

Scrap Detail WW29 - WX

Grenada BP2 Overall Inventory Costs (Sliders, HGSA's, Media, Drives)

Current Phase Status: GEN1, GEN 2

Updated as of 13 Jan '14	On-Hold \$	Remarks	Status
HDAs level Inventory - Wuxi			
Media,PN:100728039,RMO G9LT Aperio,Qty wip:292pcs prime;12pcs recycle	48		Scrap to 70038
Media,PN:100715596,FG9LT,16D, 8.5k, LIM. wip 267pcs prime;238pcs scrap	942	Will RTV in Jan	
Media,PN:100731321,G10.5+,wip 10pcs recycle	40		
MBA,PN:100733087, Qty wip:5pcs prime; 0pcs recycle	24	NTC PN inventory	
MBA,PN:100738739,qty wip 22pcs recycle	108	line fail from WUBGD41147A	
MBA,PN:100739347,qty wip 8pcs recycle;60pcs prime	33	line fail from WX131125B14BRHE	
Cover,PN:100722115,Qty wip:24pcs recycle;0pcs prime	21	line fail from WUBGD21146A	
Cover,PN:100722116,Qty wip:28pcs recycle;0pcs prime	25	recycle from WUGGD4C0003	

HSA Inventory @Wuxi			
P/N:100725134(Good Wip:368pcs)	4577	non-POR HSA from SBR#BP2K058 demand cancel	Scrap to 70038
P/N:100738495(Bad Wip:365pcs)	4632	T/D from CRT1 HAS affected MPT PZT conductivity exposure issue	Scrap to RHO
P/N:100728636(Good Wip:38pcs)	482	non-POR HSA from PVT4	Factory Scrap
P/N:100738493(Bad Wip:44pcs)	376	Wuxi Scrap HAS from line fail	RTN for Teardown and reclaim
P/N:100738495(Bad Wip:8pcs)	102	Wuxi Scrap HAS from line fail	
P/N:100738496(Bad Wip:32pcs)	548	Wuxi Scrap HAS from line fail	
P/N:100738498(Bad Wip:16pcs)	274	Wuxi Scrap HAS from line fail	
P/N:100738499(Bad Wip:21pcs)	266	Wuxi Scrap HAS from line fail	

PCBA Inventory

(Wuxi) Total Grenada BP2 Cost \$12,519

Scrap Detail WW29 - SZ

Grenada BP2 Overall Inventory Costs (Sliders, HGSAs, Media, Drives)			
Current Phase Status: GEN1, GEN 2			
Updated as of 13 Jan '14	On-Hold \$	Remarks	Status
HDAs level Inventory - Suzhou			
Cover,PN:100722117,Qty wip:90pcs recycle;0pcs prime	131	line fail from Bacall BBP2 CRT 1.0 1D1 / RHO / TI line fail from Bacall BBP2 CRT 1.0 1D1 / RHO / TI line fail from Bacall BBP2 CRT 2 1D2 / TDK / LSI	Scrap to 70038
Media,PN:100734184,Qty wip:452pcs recycle;	1789		
Media,PN:100715596,Qty wip:18pcs recycle;	71		
Media,PN:100731321,Qty wip:24pcs recycle;	95		
HSA Inventory @Suzhou			
P/N:100725132(bad Wip: 0pcs recycle;332pcs prime)	2836	Excess HGSA due to demand reduced,non-POR Pn,suggest to scrap	Scrap to 70038
P/N:100738493 (bad wip:380pcs recycle)	3246	MPT issue ,Need scrap	RHO Scrap
P/N:100728716 (bad wip:62pcs recycle)	530	line fail	Rework / Scrap non usable components
P/N:100738497 (bad wip:19pcs recycle)	17	line fail	
P/N:100728717 (bad wip:16pcs recycle)	137	line fail	
P/N:100728719 (bad wip:35pcs recycle)	139	line fail	
P/N:100738495 (bad wip:4pcs recycle)	49	line fail	
PCBA Inventory			
PN:100723921, 40pcs recycle	305	GBP31 PCBA inventory	Scrap authorized previously
Drives AFGI-T			
H.DA,123pcs fail	759	Fail H.DA of Grenada MMI China 430 TC Qual Builds/SBS / Disty CDU / 3TB/Grenada Option 3 Qual Builds	Pending Disposition
(Suzhou) Total Grenada BP2 Cost		\$10,103	

GRENADABP2 - 01/08/2014

Summary of Gen 2

Legend:

- Passed
- Failed
- In Process
- Scheduled or Delivered

Box Information:

5-1-60

- # of Drives
- # of Incidents
- # of Failures

6/14/2011 - Date in box

Date indicates ECD for tests 'In Process'

6/14/2011 S - Date with 'S' in box

Date indicates ECD for tests 'In Process'

'S' indicates additional test scheduled

5-1-60 * Asterisk indicates that test was manually set to Passed or Failed

Stop Light Chart

4-Corner

Test Name	SBS	500 GB	1000 GB	2000 GB	3000 GB
Thermal Voltage Margins: (TVM)	Y	1-0-31	6-0-30	13-0-240	0-0-28
Thermal Voltage Margins - NL: (TVM_NL)	N	-----	-----	-----	-----

Acoustics

Test Name	SBS	500 GB	1000 GB	2000 GB	3000 GB
Acoustic APM: (ACAPM)	N	-----	-----	-----	-----
Acoustic Latch - Power off Retract: (ALPOR)	Y	0-0-30	0-0-10	0-0-10	-----
Acoustic LUL: (ACLUL)	Y	-----	-----	-----	-----
Acoustic Sound Power: (ASPWR)	Y	0-0-120	0-0-40	0-0-40	-----
CE Sound Quality: (CESQ)	N	-----	-----	-----	-----
PDT Prominence Ratio: (PDT_PR)	Y	-----	-----	-----	-----

Granada DD2 Core2 DMT

Agency

TestName	SBS	500 GB	1000 GB	2000 GB	3000 GB
DC Magnet Test: (DCMAG)	N	-----	-----	-----	-----
ElectroMagnetic Compatibility: (EMC)	Y	-----	-----	-----	0-0-12 09/17/2013 S
Electro-Static Discharge-Non Operating: (ESD_NOP)	Y	0-0-6	0-0-2	0-0-2	0-0-2
Electro-Static Discharge-Operating: (ESD)	N	-----	-----	-----	-----
Magnetic Fratricide: (MAGFrat)	Y	-----	-----	-----	-----
Mobile Device Immunity, Drive Level: (MDID)	N	-----	-----	-----	-----
Mobile Device Immunity, System Level: (MDIS)	N	-----	-----	-----	-----
Non-Operating Uniform Stray Field Test 2.5 Inch: (NOMAG_UF)	N	-----	-----	-----	-----
Radiated Emission: (RadEm)	N	0-0-3	0-0-1	0-0-1	0-0-1
Safety Certification: (SCert)	Y	-----	-----	-----	0-0-8 08/27/2013 S

Baseline

TestName	SBS	500 GB	1000 GB	2000 GB	3000 GB
Baseline (ODT) - interface: (BL_ODT_I)	N	0-1-278 * 09/23/2013 S	1-0-113	2-1-858	0-0-119

Grenada BP2 Gen2 DMT

Environmental Stress

Test Name	GBS	500 GB	1000 GB	2000 GB	3000 GB
Accelerated Storage Test 60C/80RH: (ASTL1)	Y	1-0-33	0-0-11	0-0-11	-----
Accelerated Storage Test 70C/75RH: (ASTL2)	N	-----	-----	-----	-----
Accelerated Storage Test 85C/85RH: (ASTL3)	N	-----	-----	-----	-----
Cold Contamination Test: (CCTst)	N	0-0-30	0-0-11	0-0-11	0-0-11
Hot Storage Test: (HST)	Y	0-0-30	0-0-10	0-0-10	0-0-10
Rapid Humidity Acclimation Test: (RHAT)	N	0-0-30	0-0-82	0-0-10	0-0-10
Seagate Environmental Stress Test: (SEST)	Y	-----	-----	-----	-----
Transit Storage Environment: (TSE)	N	-----	-----	-----	-----

Head/Media Interface

TestName	SS	500 GB	1000 GB	2000 GB	3000 GB
Accelerated Burnish Test: (ABT)	Y	0-0-91	0-0-30	0-0-30	-----
Adjacent Track Interference Nearline: (ATI_NL)	N	-----	-----	-----	-----
Adjacent Track Interference Nearline - Margin Test: (ATI_NL_M)	N	-----	-----	-----	-----
Adjacent Track Interference: (ATI)	N	-----	-----	-----	-----
Altitude: (ALT)	Y	1-0-15	0-0-5	0-0-5	-----
Altitude Flyability: (Alt Fly)		0-0-12	0-0-4	0-0-4	-----
Ambient LUL - Hard: (ALULH)	N	0-0-30	1-0-10	0-0-10	-----
Ambient LUL - Soft: (ALULS)	N	1-0-31	0-0-10	0-0-10	-----
Extended ATI: (XATI)	N	-----	-----	-----	-----
Full Stroke Seek: (FSS)	N	-----	-----	-----	-----
On Track Dwell: (OTD)	N	-----	-----	-----	-----
Stress LUL - Hard 32 80: (SLULH32_80)	N	0-0-15	0-0-5	0-0-5	0-0-5
Stress LUL - Hard 5 20: (SLULH5_20)	N	0-0-25	0-0-5	0-0-5	-----
Stress LUL - Hard 60 20: (SLULH60_20)	N	0-0-15	0-0-5	0-0-5	-----
Stress LUL - Soft 32 80: (SLULS32_80)	N	0-0-15	0-0-5	0-0-5	-----
Stress LUL - Soft 5 20: (SLULS5_20)	N	0-0-15	0-0-5	0-0-5	-----
Stress LUL - Soft 60 20: (SLULS60_20)	N	0-0-15	0-0-5	0-0-5	-----
Thermal Decay: (TDEC)	N	-----	-----	-----	-----

Grenada BP2 Gen2 DMT

Power/Electrical

TestName	S/S	500 GB	1000 GB	2000 GB	3000 GB
DC Current and Power Consumption: (DCPwr)		0-0-15	0-0-5	0-0-5	-----
DC Ripple and Conducted Noise: (DCRip)	Y	0-0-15	0-0-5	0-0-5	-----
Hot Plug: (HotPlg)	N	-----	-----	-----	-----
PCBA Thermal Map: (PCBATM)	Y	0-0-6 09/25/2013 S	0-0-2 09/25/2013 S	0-0-2 09/25/2013 S	-----
Power Consumption: (PWR_CON)	Y	-----	-----	-----	-----
Power Loss Recovery: (PLR)	Y	0-0-15	0-0-5	0-0-5	-----
Power Supply Ramping: (PSR)	Y	0-0-15	0-0-5	0-0-5	-----
Start and Stop Timing: (SST)	Y	0-0-15	0-0-5	0-0-5	-----

Cronado DD2 Core2 DMT

Shock and Vibration

Test Name	SS	500 GB	1000 GB	2000 GB	3000 GB
Baseplate Distortion: (BSPLDIS)	N	-----	-----	-----	-----
Non-Operating Shock - Rotary: (RNOS)	N	-----	-----	-----	-----
Non-Operating Shock One Axis Fragility (1 msec): (NOS1A_1)	Y	-----	-----	-----	-----
Non-Operating Shock One Axis Fragility (1/2 msec): (NOS1A_H)	Y	-----	-----	-----	-----
Non-Operating Shock One Axis Fragility (11 msec): (NOS1A-11)	N	-----	-----	-----	-----
Non-Operating Shock One Axis Fragility (2 msec): (NOS1A_2)	Y	-----	-----	-----	-----
Non-Operating Shock Six Axis (.5msec): (NOS6A_05)	Y	0-0-9	0-0-3	0-0-3	0-0-3
Non-Operating Shock Six Axis (11 msec Lenovo): (NONOS_11LEN)	N	-----	-----	-----	-----
Non-Operating Shock Six Axis (11ms): (NOS6A_11)	N	-----	-----	-----	-----
Non-Operating Shock Six Axis (1msec): (NOS6A_1)	Y	0-0-9	0-0-3	0-0-3	0-0-3
Non-Operating Shock Six Axis (2msec): (NOS6A)	Y	0-0-9	0-0-3	0-0-3	0-0-3
Non-Operating Vibration - Random: (NOVR)	Y	-----	-----	-----	-----
Non-Operating Vibration - Sine: (NOVS)	Y	-----	-----	-----	-----
Operating Shock - Rotary: (ROS)	N	-----	-----	-----	-----
Operating Shock (11ms): (OS_11)	N	-----	-----	-----	-----
Operating Shock (2ms): (OS_2)		0-0-18	0-0-6	0-0-6	0-0-6
Operating shock six axis 0.5ms: (OS6_HALF)	Y	-----	-----	-----	-----
Operating Shock Six Axis 1ms: (OS6_1)	Y	-----	-----	-----	-----
Operating Shock Six Axis 2 ms: (OS6_2)	Y	-----	-----	-----	-----
Operating Vibration - Linear Random: (LROV)	Y	0-0-9	0-0-3	0-0-3	0-0-3
Operating Vibration - Random: (OVR)	Y	-----	-----	-----	-----
Operating Vibration - Rotary Random: (RROV)	Y	0-0-9	0-0-3	0-0-3	0-0-3
Operating Vibration - Sine: (OVS)	Y	-----	-----	-----	-----
Table Drop Test: (TBL_DP)	N	-----	-----	-----	-----
Top Cover Stiffness Test: (TCST)	Y	-----	-----	-----	-----
Topple Drop: (TD)	Y	0-0-15	0-0-5	0-0-5	0-0-5

Grenada BP2 CRT 1.0 DMT

Baseline

TestName	SS	500 GB	1000 GB	2000 GB	3000 GB
Baseline (ODT) - interface: (BL_ODT_I)	N	0-0-252 11/23/2013	0-0-118	0-0-144	0-0-162

Environmental Stress





TestName	SS	500 GB	1000 GB	2000 GB	3000 GB
Accelerated Storage Test 60C/80RH: (ASTL1)	Y	-----	-----	0-0-7 01/04/2014	0-0-9 01/04/2014
Accelerated Storage Test 70C/75RH: (ASTL2)	N	-----	-----	-----	-----
Accelerated Storage Test 85C/85RH: (ASTL3)	N	-----	-----	-----	-----
Cold Contamination Test: (CCTst)	N	-----	-----	-----	-----
Hot Storage Test: (HST)	Y	-----	-----	-----	-----
Rapid Humidity Acclimation Test: (RHAT)	N	-----	-----	-----	-----
Seagate Environmental Stress Test: (SEST)	Y	-----	-----	-----	-----
Transit Storage Environment: (TSE)	N	-----	-----	-----	-----

Shock and Vibration

Test Name	SBS	500 GB	1000 GB	2000 GB	3000 GB
Baseplate Distortion: (BSPLDIS)	N	-----	-----	-----	-----
Non-Operating Shock - Rotary: (RNOS)	N	-----	-----	-----	-----
Non-Operating Shock One Axis Fragility (1 msec): (NOS1A_1)	Y	-----	-----	-----	-----
Non-Operating Shock One Axis Fragility (1/2 msec): (NOS1A_H)	Y	-----	-----	-----	-----
Non-Operating Shock One Axis Fragility (11 msec): (NOS1A_11)	N	-----	-----	-----	-----
Non-Operating Shock One Axis Fragility (2 msec): (NOS1A_2)	Y	-----	-----	-----	-----
Non-Operating Shock Six Axis (.5msec): (NOS6A_05)	Y	0-0-6 11/15/2013 S	0-0-3 11/15/2013 S	0-0-6 11/15/2013 S	0-0-6 11/18/2013 S
Non-Operating Shock Six Axis (11 msec Lenovo): (NONOS_11LEN)	N	-----	-----	-----	-----
Non-Operating Shock Six Axis (11ms): (NOS6A_11)	N	-----	-----	-----	-----
Non-Operating Shock Six Axis (1msec): (NOS6A_1)	Y	0-0-6 11/16/2013 S	0-0-3 11/16/2013 S	0-0-6 11/16/2013 S	0-0-6 11/19/2013 S
Non-Operating Shock Six Axis (2msec): (NOS6A)	Y	0-0-6 11/15/2013 S	0-0-3 11/15/2013 S	0-0-6 11/15/2013 S	0-0-6 11/18/2013 S
Non-Operating Vibration - Random: (NOVR)	Y	-----	-----	-----	-----
Non-Operating Vibration - Sine: (NOVS)	Y	-----	-----	-----	-----
Operating Shock - Rotary: (ROS)	N	-----	-----	-----	-----
Operating Shock (11ms): (OS_11)	N	-----	-----	-----	-----
Operating Shock Read Six Axis (2ms): (OSR6A_2)		0-0-6 11/26/2013 S	0-0-3 11/26/2013 S	0-0-6 11/26/2013 S	0-0-6 11/29/2013 S
Operating shock six axis 0.5ms: (OS6_HALF)	Y	-----	-----	-----	-----
Operating Shock Six Axis 1ms: (OS6_1)	Y	-----	-----	-----	-----
Operating Shock Six Axis 2 ms: (OS6_2)	Y	-----	-----	-----	-----
Operating Shock Write Six Axis (2ms): (OSW6A_2)		0-0-6 11/26/2013 S	0-0-3 11/26/2013 S	0-0-6 11/26/2013 S	0-0-6 11/29/2013 S
Operating Vibration - Linear Random: (LROV)	Y	-----	-----	0-0-3 11/14/2013 S	-----
Operating Vibration - Random: (OVR)	Y	-----	-----	-----	-----
Operating Vibration - Rotary Random: (RROV)	Y	-----	-----	-----	-----
Operating Vibration - Sine: (OVS)	Y	-----	-----	-----	-----
Table Drop Test: (TBL_DP)	N	-----	-----	-----	-----
Top Cover Stiffness Test: (TCST)	Y	-----	-----	-----	-----
Topple Drop: (TD)	Y	0-0-10	0-0-10	0-0-15	1-0-10 12/05/2013

BACALLBP2 - 01/08/2014

Summary of PDMT

Legend:		Box Information:	
	Passed	5-1-60	6/14/2011 - Date in box
	Failed	└─ # of Drives	Date indicates ECD for tests 'In Process'
	In Process	└─ # of Incidents	6/14/2011 S - Date with 'S' in box
	Scheduled or Delivered	└─ # of Failures	Date indicates ECD for tests 'In Process'
			'S' indicates additional test scheduled
		5-1-60 * Asterisk indicates that test was manually set to Passed or Failed	

Stop Light Chart

4-Corner

Test Name	SBS	1000 GB	2000 GB
Thermal Voltage Margins: (TVM)	Y	-----	-----
Thermal Voltage Margins - NL: (TVM_NL)	N	-----	-----

Acoustics

Test Name	SBS	1000 GB	2000 GB
Acoustic APM: (ACAPM)	N	-----	-----
Acoustic Latch - Power off Retract: (ALPOR)	Y	0-0-20	0-0-10
Acoustic LUL: (ACLUL)	Y	0-0-10	0-0-5
Acoustic Sound Power: (ASPRWR)	Y	-----	-----
Acoustic Sound Pressure: (ASPRSR)		0-0-20	0-0-10
CE Sound Quality: (CESQ)	N	-----	-----
PDT Prominence Ratio: (PDT_PR)	Y	0-0-20	0-0-10
PVR Acoustic Sound Power: (PVR_ASP)		0-0-80	0-0-40

Recall RD2 Gen2 DMT

Agency

Test Name	SBS	1000 GB	2000 GB
DC Magnet Test: (DCMAG)	N	-----	-----
ElectroMagnetic Compatibility: (EMC)	Y	-----	-----
Electro-Static Discharge-Non Operating: (ESD_NOP)	Y	0-0-4	0-0-2
Electro-Static Discharge-Operating: (ESD)	N	-----	-----
Magnetic Fratricide: (MAGFrat)	Y	-----	-----
Mobile Device Immunity, Drive Level: (MDID)	N	-----	-----
Mobile Device Immunity, System Level: (MDIS)	N	-----	-----
Non-Operating Uniform Stray Field Test 2.5 Inch: (NOMAG_UF)	N	-----	-----
Radiated Emission: (RadEm)	N	0-0-2	0-0-1
Safety Certification: (SCert)	Y	-----	-----

Baseline

Test Name	SBS	1000 GB	2000 GB
Baseline (ODT) - interface: (BL_ODT_I)	N	-----	-----

Bacall BP2 Gen2 DMT

Environmental Stress

Test Name	SBS	1000 GB	2000 GB
Accelerated Storage Test 60C/80RH: (ASTL1)	Y	0-0-22	0-0-19
Accelerated Storage Test 70C/75RH: (ASTL2)	N	-----	-----
Accelerated Storage Test 85C/85RH: (ASTL3)	N	-----	-----
Cold Contamination Test: (CCTst)	N	0-0-22	0-0-22
Hot Storage Test: (HST)	Y	0-0-21	0-0-21
Rapid Humidity Acclimation Test: (RHAT)	N	0-0-20	0-0-20
Seagate Environmental Stress Test: (SEST)	Y	-----	-----
Transit Storage Environment: (TSE)	N	0-0-12	0-0-6

Head/Media Interface

Test Name	SS	1000 GB	2000 GB
Accelerated Burnish Test: (ABT)	Y	1-0-65	3-0-35
Adjacent Track Interference Nearline: (ATI_NL)	N	-----	-----
Adjacent Track Interference Nearline - Margin Test: (ATI_NL_M)	N	-----	-----
Adjacent Track Interference: (ATI)	N	-----	-----
Altitude: (ALT)	Y	0-0-10	0-0-5 09/14/2013
Ambient LUL - Hard: (ALULH)	N	0-0-20	0-0-21
Ambient LUL - Soft: (ALULS)	N	0-0-20	0-0-20
Extended ATI: (XATI)	N	-----	-----
Full Stroke Seek: (FSS)	N	-----	-----
On Track Dwell: (OTD)	N	-----	-----
Stress LUL - Hard 32 80: (SLULH32_80)	N	-----	-----
Stress LUL - Hard 5 20: (SLULH5_20)	N	-----	-----
Stress LUL - Hard 60 20: (SLULH60_20)	N	-----	-----
Stress LUL - Soft 32 80: (SLULS32_80)	N	0-0-10	0-0-5
Stress LUL - Soft 5 20: (SLULS5_20)	N	0-0-10	0-0-5
Stress LUL - Soft 60 20: (SLULS60_20)	N	0-0-10	0-0-5
Thermal Decay: (TDEC)	N	-----	-----

Bacall BP2 Gen2 DMT

Power/Electrical





Test Name	SBS	1000 GB	2000 GB
DC Current and Power Consumption: (DCPwr)		0-0-10	0-0-5
DC Ripple and Conducted Noise: (DCRip)	Y	0-0-10	0-0-5
Hot Plug: (HotPlg)	N	-----	-----
PCBA Thermal Map: (PCBATM)	Y	-----	-----
Power Consumption: (PWR_CON)	Y	-----	-----
Power Loss Recovery: (PLR)	Y	0-0-10	0-0-5
Power Supply Ramping: (PSR)	Y	0-0-10	0-0-5
Start and Stop Timing: (SST)	Y	0-0-10	0-0-5

Shock and Vibration

Test Name	SBS	1000 GB	2000 GB
Baseplate Distortion: (BSPLDIS)	N	-----	-----
Non-Operating Shock - Rotary: (RNOS)	N	-----	-----
Non-Operating Shock One Axis Fragility (1 msec): (NOS1A_1)	Y	-----	-----
Non-Operating Shock One Axis Fragility (1/2 msec): (NOS1A_H)	Y	-----	-----
Non-Operating Shock One Axis Fragility (11 msec): (NOS1A-11)	N	-----	-----
Non-Operating Shock One Axis Fragility (2 msec): (NOS1A_2)	Y	-----	-----
Non-Operating Shock Six Axis (.5msec): (NOS6A_05)	Y	-----	-----
Non-Operating Shock Six Axis (11 msec Lenovo): (NONOS_11LEN)	N	-----	-----
Non-Operating Shock Six Axis (11ms): (NOS6A_11)	N	-----	-----
Non-Operating Shock Six Axis (1msec): (NOS6A_1)	Y	-----	-----
Non-Operating Shock Six Axis (2msec): (NOS6A)	Y	0-0-12	0-0-6
Non-Operating Vibration - Random: (NOVR)	Y	-----	-----
Non-Operating Vibration - Sine: (NOVS)	Y	-----	-----
Operating Shock - Rotary: (ROS)	N	-----	-----
Operating Shock (11ms): (OS_11)	N	-----	-----
Operating Shock (2ms): (OS_2)		0-0-12	0-0-6 08/20/2013 S
Operating shock six axis 0.5ms: (OS6_HALF)	Y	-----	-----
Operating Shock Six Axis 1ms: (OS6_1)	Y	-----	-----
Operating Shock Six Axis 2 ms: (OS6_2)	Y	-----	-----
Operating Vibration - Linear Random: (LROV)	Y	0-0-6	0-0-3
Operating Vibration - Random: (OVR)	Y	0-0-6	0-0-3
Operating Vibration - Rotary Random: (RROV)	Y	0-0-6	0-0-3
Operating Vibration - Sine: (OVS)	Y	0-0-6	0-0-3
Table Drop Test: (TBL_DP)	N	-----	-----
Top Cover Stiffness Test: (TCST)	Y	-----	-----
Topple Drop: (TD)	Y	0-0-10	0-0-5

BACALLBP2 - 01/08/2014

Summary of CRT 1

Legend:		Box Information:	
	Passed	5-1-60	6/14/2011 - Date in box
	Failed	└─ # of Drives	Date indicates ECD for tests 'In Process'
	In Process	└─ # of Incidents	6/14/2011 S - Date with 'S' in box
	Scheduled or Delivered	└─ # of Failures	Date indicates ECD for tests 'In Process'
			'S' indicates additional test scheduled
		5-1-60 * Asterisk indicates that test was manually set to Passed or Failed	

Stop Light Chart

4-Corner

Test Name	SBS	1000 GB	2000 GB	3000 GB
Thermal Voltage Margins: (TVM)	Y	1-0-30	0-0-30	0-0-59
Thermal Voltage Margins - NL: (TVM_NL)	N	-----	-----	-----

Acoustics

Test Name	SBS	1000 GB	2000 GB	3000 GB
Acoustic APM: (ACAPM)	N	-----	-----	-----
Acoustic Latch - Power off Retract: (ALPOR)	Y	-----	-----	-----
Acoustic LUL: (ACLUL)	Y	-----	-----	-----
Acoustic Sound Power: (ASPWR)	Y	-----	-----	-----
CE Sound Quality: (CESQ)	N	-----	-----	-----
PDT Prominence Ratio: (PDT_PR)	Y	-----	-----	-----

Bacall BP2 CRT 1.0 DMT

Baseline

Test Name	SBS	1000 GB	2000 GB	3000 GB
Baseline (ODT) - interface: (BL_ODT_I)	N	0-0-258	1-1-173 11/26/2013	5-4-774

Environmental Stress

Test Name	SBS	1000 GB	2000 GB	3000 GB
Accelerated Storage Test 60C/80RH: (ASTL1)	Y	-----	-----	0-0-22 12/27/2013
Accelerated Storage Test 70C/75RH: (ASTL2)	N	-----	-----	-----
Accelerated Storage Test 85C/85RH: (ASTL3)	N	-----	-----	-----
Cold Contamination Test: (CCTst)	N	-----	-----	-----
Hot Storage Test: (HST)	Y	-----	-----	-----
Rapid Humidity Acclimation Test: (RHAT)	N	-----	-----	-----
Seagate Environmental Stress Test: (SEST)	Y	-----	-----	-----
Transit Storage Environment: (TSE)	N	-----	-----	-----

Shock and Vibration

TestName	SBS	1000 GB	2000 GB	3000 GB
Baseplate Distortion: (BSPLDIS)	N	-----	-----	-----
Non-Operating Shock - Rotary: (RNOS)	N	-----	-----	-----
Non-Operating Shock One Axis Fragility (1 msec): (NOS1A_1)	Y	-----	-----	-----
Non-Operating Shock One Axis Fragility (1/2 msec): (NOS1A_H)	Y	-----	-----	-----
Non-Operating Shock One Axis Fragility (11 msec): (NOS1A_11)	N	-----	-----	-----
Non-Operating Shock One Axis Fragility (2 msec): (NOS1A_2)	Y	-----	-----	-----
Non-Operating Shock Six Axis (.5msec): (NOS6A_05)	Y	0-0-3 11/17/2013 S	0-0-3 11/17/2013 S	0-0-9 11/17/2013 S
Non-Operating Shock Six Axis (11 msec Lenovo): (NONOS_11LEN)	N	-----	-----	-----
Non-Operating Shock Six Axis (11ms): (NOS6A_11)	N	-----	-----	-----
Non-Operating Shock Six Axis (1msec): (NOS6A_1)	Y	0-0-3 11/18/2013 S	0-0-3 11/18/2013 S	0-0-9 11/18/2013 S
Non-Operating Shock Six Axis (2msec): (NOS6A)	Y	0-0-3 11/17/2013 S	0-0-8 12/05/2013 S	0-0-16 11/17/2013 S
Non-Operating Vibration - Random: (NOVR)	Y	-----	-----	-----
Non-Operating Vibration - Sine: (NOVS)	Y	-----	-----	-----
Operating Shock - Rotary: (ROS)	N	-----	-----	-----
Operating Shock (11ms): (OS_11)	N	-----	-----	-----
Operating Shock Read Six Axis (2ms): (OSR6A_2)		0-0-3 11/28/2013 S	0-0-3 11/28/2013 S	0-0-9 11/28/2013 S
Operating shock six axis 0.5ms: (OS6_HALF)	Y	-----	-----	-----
Operating Shock Six Axis 1ms: (OS6_1)	Y	-----	-----	-----
Operating Shock Six Axis 2 ms: (OS6_2)	Y	-----	-----	-----
Operating Shock Write Six Axis (2ms): (OSW6A_2)		0-0-3 11/28/2013 S	0-0-3 11/28/2013 S	0-0-9 11/28/2013 S
Operating Vibration - Linear Random: (LROV)	Y	0-0-3 11/16/2013 S	0-0-3 11/16/2013 S	0-0-9 11/16/2013 S
Operating Vibration - Random: (OVR)	Y	0-0-3 11/15/2013 S	0-0-3 11/15/2013 S	0-0-9 11/15/2013 S
Operating Vibration - Rotary Random: (RROV)	Y	0-0-3 11/15/2013 S	0-0-3 11/15/2013 S	0-0-9 11/15/2013 S
Operating Vibration - Sine: (OVS)	Y	0-0-3 11/15/2013 S	0-0-3 11/15/2013 S	0-0-9 11/15/2013 S
Table Drop Test: (TBL_DP)	N	-----	-----	-----
Top Cover Stiffness Test: (TCST)	Y	-----	-----	-----
Topple Drop: (TD)	Y	2-0-10 11/16/2013 S	0-0-15	9-0-25